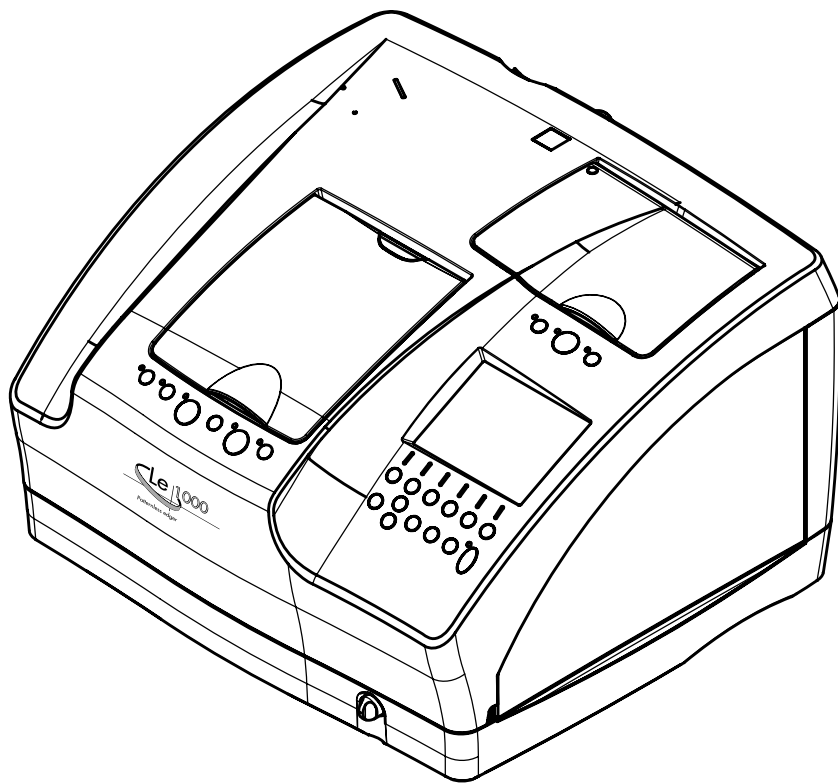


NIDEK

PATTERNLESS EDGER

Model *Le 1000*

OPERATOR'S MANUAL





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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 PATTERNLESS EDGER, Le 1000. IEC standards are applied in this manual.


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 property damage.

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

Use precautions

Before Use



WARNING • Use a hand cart to move the instrument to a different location. At least two persons are necessary to lift the instrument.

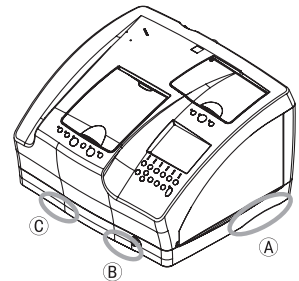
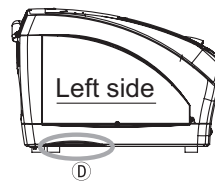
Back injury or stumbling may occur when a single person attempts to move the instrument.

- **Hold the instrument by indentations A and D at the bottom of both sides and by indentations B and C at the front bottom when lifting it.**

Failure to do so may cause the instrument to drop and resulting in injury or malfunction.

- **Be careful not to get fingers caught when setting the lifted instrument down.**

Fingers may get caught between the table and instrument resulting in injury.



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 40 °C (41 to 104 °F)

Humidity: 30 to 80% [Relative humidity must not exceed 50% at a maximum temperature of 40 °C (104 °F)]

Altitude: 2000 m or less at sea level

- **Install the instrument in a location with an adequate operating area in front of the instrument as illustrated on page VII.**

- **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 give full performance. 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.

- **Fully insert the main power plug into the outlet.**

Fire may occur if the instrument is used with a loose connection.

⚠ CAUTION • Do not place heavy objects on the cord.

A damaged power cord may cause fire or electric shock.

- **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 use an outlet equipped with a ground terminal.**

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.

- **Install the instrument on the specified table (optional) or a support which is strong enough for the weight of the instrument (41 kg).**

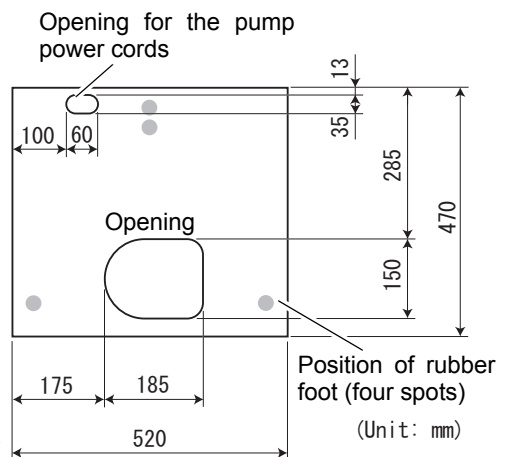
Vibrations and noises may be produced, and normal processing may not be performed.

- **Set the instrument on a surface whose area is larger than the dimensions to the right. The support should also be equipped with adjusters on its legs allowing it to be level and stable.**

It is necessary to make openings on the table top to draw the pipes and cords.

- **Do not block the cooling fan in the rear. Leave a clearance of 10 cm or more.**

Failure to do so could cause a rise in temperature inside the instrument which may result in failure.



- **Install the instrument in a stable and level place where shock does not occur.**

Tilting or vibration can prevent normal lens processing.

- **Do not allow the water level to rise over the maximum line in the pump tank.**

Failure to do so could cause an overflow of water or bubbles or instrument malfunction.

- **Securely connect the cable to the RS-232C port.**

Data may not be transferred correctly.

- **Remove the units such as pump tank installed in the specified table before moving the instrument while installed on the table.**

The units installed in the table could fall resulting in injury or malfunction.

During Use



WARNING • Never touch the wheel when it is rotating.

It may result in injury.

- **Never open the processing chamber door during lens processing.**

Spray containing processing waste may cause eye damage.

- **Confirm that the wheel comes to a complete stop before pressing the  button.**

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

- **Be sure to use this instrument only to process lenses for glasses.**

The instrument cannot be substituted for a grinder. If any other materials are processed, wheels may break and shatter resulting in injury. In addition, the damaged wheels cannot perform normal processing.

Never process combustible materials such as magnesium. If they are processed, explosion or fire may occur.

- **Be sure to check visually that wheels may not be chipped or cracked before processing. If the wheels are chipped or cracked, immediately stop the instrument and contact NIDEK or your authorized distributor.**

If chipped or cracked wheels are used, they may break or shatter resulting in injury.

- **Do not inhale vapor and particles produced during lens dressing. Wear a protective mask, protective glasses and such as necessary.**

There is a possibility that the vapor or particles is harmful depending on the materials.



CAUTION • 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 malfunction, disconnect the power cord from the wall outlet. Never touch the inside of the instrument and contact NIDEK or your authorized distributor.

- **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.

- **Be sure to confirm that wash water (for the inside wall of the processing chamber) and cooling water (for the wheels) flow properly.**

If the water does not flow, lenses are not processed properly and the instrument may be damaged.

For confirmation procedures, see “2.19.1 Check before use” (page 96).

- **Be sure to make the correct material selection for the lens material being processed.**

If an improper material is selected, the lens may break or the lifetime of processing wheels may be reduced substantially.

- **Safety bevel the front and rear surfaces of glass lenses after processing.**

Subtle burrs may damage one's skin.

⚠ CAUTION • Be careful not to get fingers caught when chucking (fixing) a lens.

- **Do not apply too much pressure on the stylus of the tracing unit.**
The stylus is easy to bend or break.

Note

- Pliable cups are consumables. Replace the pliable cup with a new one when it becomes hard to remove the double-coated adhesive pad from the cup. (Guide of replacement: every 1000 of lens processing)
- It is recommended to rinse lenses processed by the lens edger with water before wiping them with a cloth or such.
Fine processing waste flying in the processing chamber of the lens edger may become adhered to the lenses. Rinsing them in water prevents their surfaces from being damaged.


After Use

⚠ CAUTION • Clean the processing chamber after the last use of the day.

If the chamber is left for some days after being used, the processing waste becomes settled and hard to remove.

- **When the instrument is not in use, turn it off and close the tracing unit lid and processing chamber door.**
If dust will accumulate, it may affect the measurement accuracy or result in malfunction.
- **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 collect 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. Fire may occur.
- **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 70 °C (-13 to 158 °F)
 - 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.

Maintenance and Check

 **CAUTION** • **Be sure to perform check before and after use. It is recommended to have periodic checks every two years.**

Periodic checks must be performed by qualified personnel. Contact NIDEK or your authorized distributor.

Wheels must be also replaced by qualified personnel. Do not replace the parts other than fuses and the stocking filter nor disassemble the instrument. Failure to do so could cause malfunction.

- **Only qualified personnel can repair the instrument.**

NIDEK will not be responsible for accidents caused by improper servicing.

- **When performing maintenance work, secure a sufficient maintenance space (see see page VII).**

Maintenance work in an insufficient space may result in injury.

- **Use a suitable dressing stick for wheel dressing.**

It may damage to wheels, which prevents normal lens processing.

- **Never dress the roughing wheel for plastic lenses.**

It may damage to the wheel.

- **When the dressing stick is worn to the length of 4 cm, replace it with a new one.**

As it is hard to hold the shortened dressing stick, your hand may contact with a wheel.

- **Wear protective glasses for wheel dressing.**

Spray containing processing waste may cause eye damage.

- **In dressing mode, the wheels are rotating with the processing chamber door open. Work with special care in dressing.**

- **Use the specified stocking filter only for replacement.**

If not, the filter or water supply pipe may become clogged with processing waste.

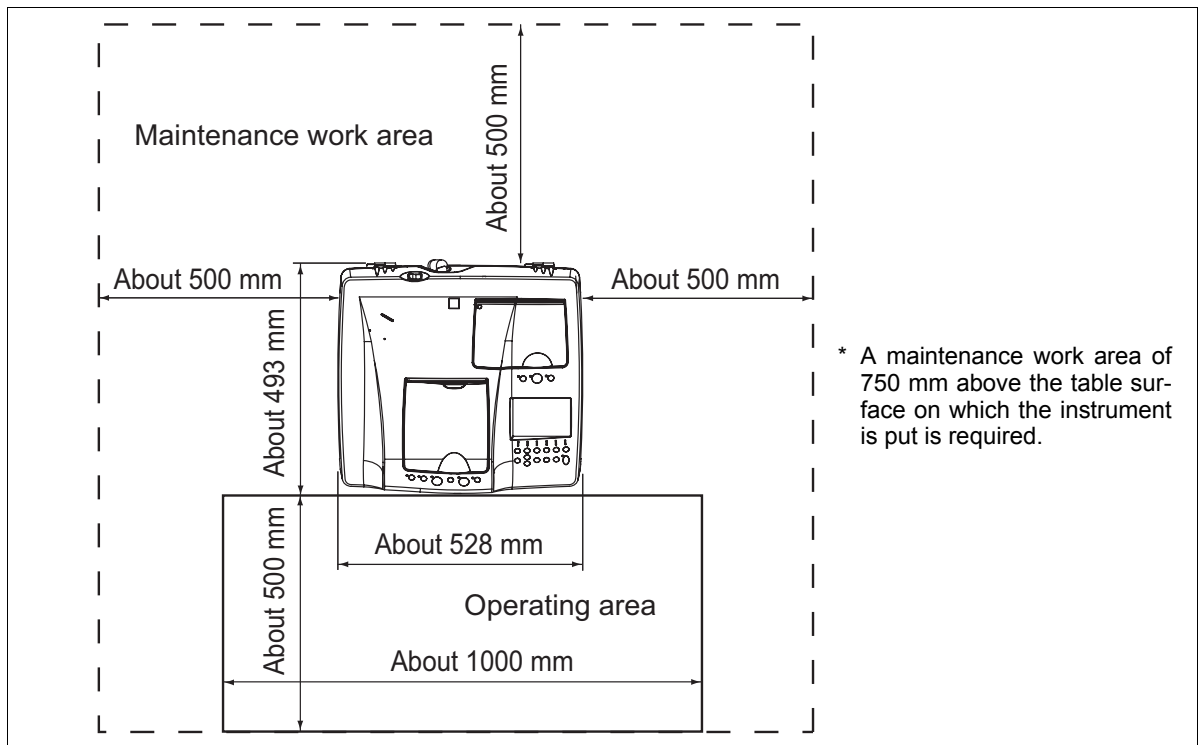
- **The stocking filter is disposable. Do not reuse it.**

A filter which has a rip or run in it does not function as a filter, and therefore, the water supply pipe may be clogged.

- **Use the specified fuses to replace the old ones.**

Using fuses other than specified may result in fire.

[Operating area and maintenance work area]



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.

- When disposing of packing materials, sort them by material and follow local ordinances and recycling regulations.
 - When disposing of processing waste, follow local ordinances.
-



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:

1.

BEFORE USE

1.1 Outline of Instrument

1

The NIDEK patternless edger Le 1000 is a fully-automatic lens edger to process lenses to fit the frame. The Le 1000 comes in four models, in combinations of with or without a frame tracer for reading lens shapes by frames and with or without safety beveling and grooving.

Frame tracer	Safety beveling and grooving	Type
With	Available	PC S, PL-4 S, PLB S, PLB-2R S (hereafter referred as S model)
With	Unavailable	PC L, PL-4 L, PLB L, PLB-2R L (hereafter referred as L model)
Without	Available	PC SNT, PL-4 SNT, PLB SNT, PLB-2R SNT (hereafter referred as SNT model)
Without	Unavailable	PC LNT, PL-4 LNT, PLB LNT, PLB-2R LNT (hereafter referred as LNT model)

This instrument is constructed with the processing chamber in the front center and its control panel just below. The display is to the right side with the tracing unit and its control panel above. (The SNT and LNT models do not have the tracing unit and its control panel.) The shapes of frames are measured with the tracing unit; the lens layout settings are entered with the control panel for processing; the shape change and layout are checked on the display; and the lens is processed into the desired shape within the processing chamber. The variety of wheels provided allow the lens to be processed in accordance to the lens material. In addition, grooving for nylon frames is possible in the S and SNT models.

○ Available lens materials and processing types

Type	Lens material							Processing type				
	Plastic	High index plastic	Polycarbonate	Acrylic resin	Trivex	Polyurethane	Glass	Beveling	Flat	Polishing	Safety beveling	Grooving
PC S PC SNT	○	○	○	○	○	○	○	○	○	×	○	○
PC L PC LNT	○	○	○	○	○	○	○	○	○	×	×	×
PL-4 S PL-4 SNT	○	○	○	○	○	○	○	○	○	△	○	○
PL-4 L PL-4 LNT	○	○	○	○	○	○	○	○	○	△	×	×
PLB S PLB SNT	○	○	○	○	○	○	×	○	○	○	○	○
PLB L PLB LNT	○	○	○	○	○	○	×	○	○	○	×	×
PLB-2R S PLB-2RSNT	○	○	○	○	○	○	○	○	○	○	○	○
PLB-2R L PLB-2RLNT	○	○	○	○	○	○	○	○	○	○	×	×

○: Available, △: Available only for flat edging, ×: Unavailable

* Polishing and grooving are unavailable for glass lenses.

* As shown on the table above, available lens materials and processing types are different depending on the wheel configuration.

Hereafter, PC S, PC SNT, PC L, PC LNT are referred as PC type.

PC-4 S, PL-4 SNT, PL-4 L, PL-4 LNT are referred as PL-4 type.

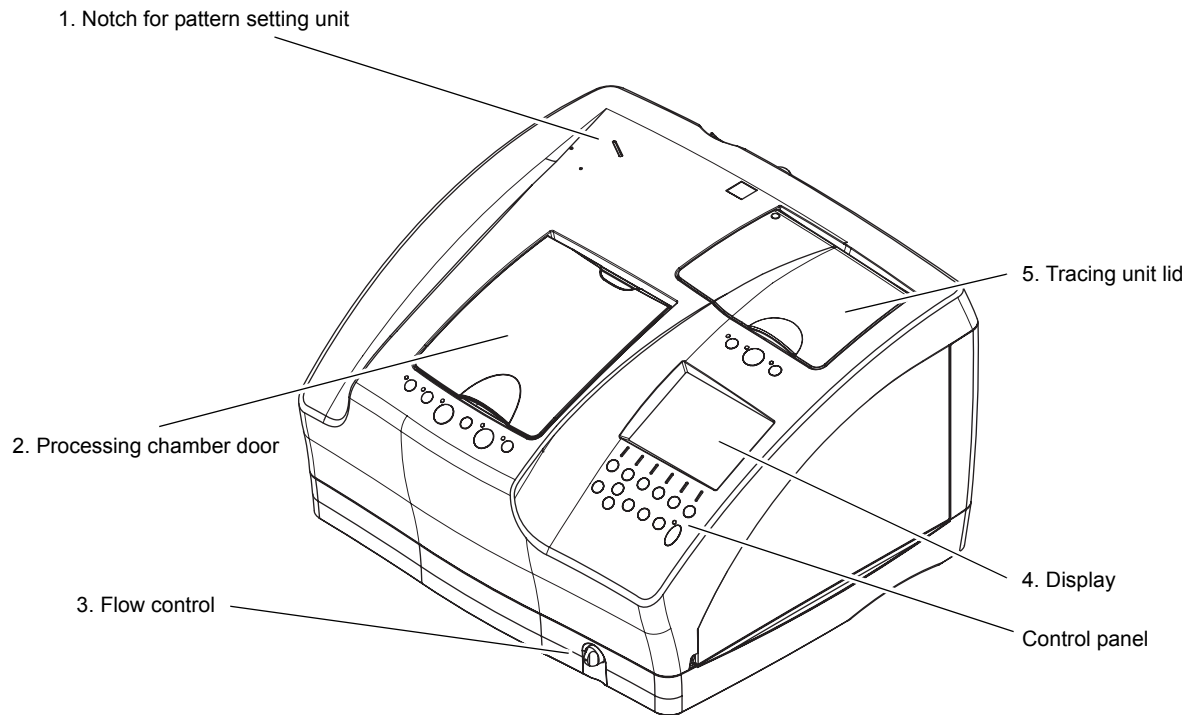
PLB S, PLB SNT, PLB L, and PLB LNT are referred as PLB type.

PLB-2R S, PLB-2R SNT, PLB-2R L, and PLB-2R LNT are referred as PLB-2R type.

* The PLB type is used for screen samples in this manual. Indications differ depending on the type.

1.2 Configuration

○ Front view



1. Notch for pattern setting unit

The provided pattern setting unit is placed here when not in use.

2. Processing chamber door

It prevents spray or processing waste from flying free and reduces the processing noise. The door covers the processing chamber.

Be sure to close the door during processing.

3. Flow control

Controls the flow volume of the cooling water poured over the wheels.

4. Display

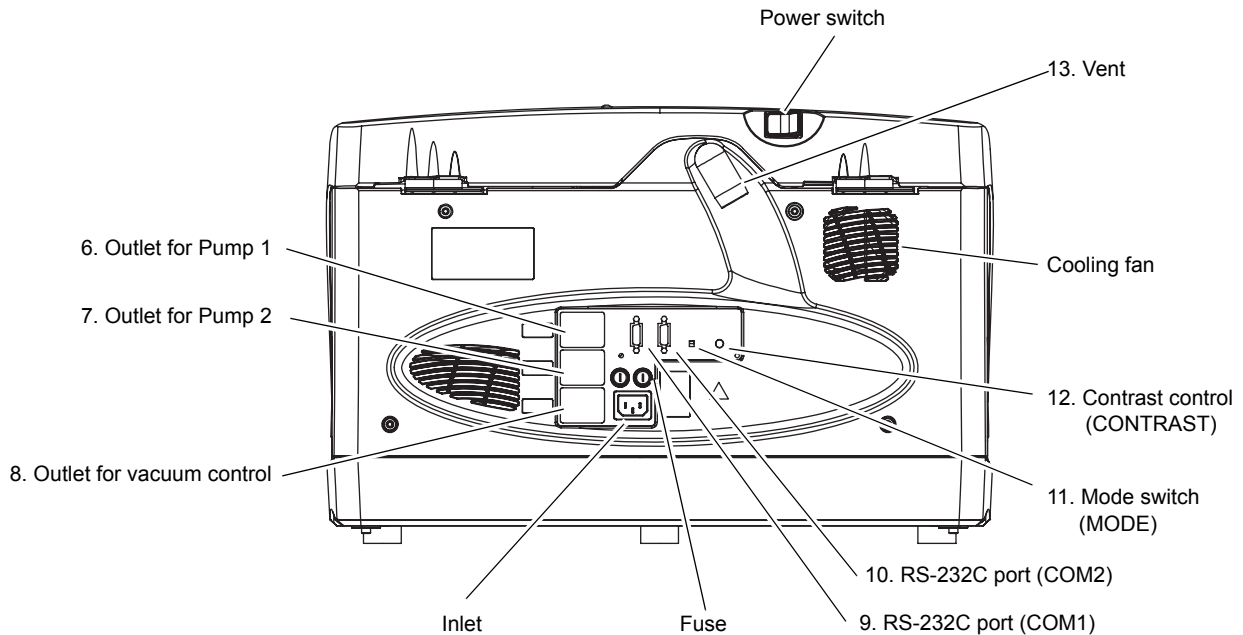
Shows lens shapes and layout data.

5. Tracing unit lid

The lid of the tracing unit. The lid covers the tracing unit for measuring frames or lens shapes. (The SNT and LNT models are not equipped with a tracing unit, so this area may be used as a storage space for small articles.)

Close the lid while the tracing unit is not used.

○ Rear view



6. Outlet for Pump 1 (Pump 1)

Connects with the power cord of the pump for cooling water control.

7. Outlet for Pump 2 (Pump 2)

Connects with the power cord of the pump for wash water control.

8. Outlet for vacuum control

Connects with the power cord of the deodorizer LED-200.

The deodorizer automatically turns on or off in conjunction with the Le 1000.

9. RS-232C port (COM1)

Communication port for connection with a computer or an optional intelligence blocker

10. RS-232C port (COM2)

Communication port for connection with an optional barcode scanner or intelligence blocker

11. Mode switch (MODE)

Used to upgrade the software.

This is not used normally. Do not touch here.

12. Contrast control (CONTRAST)

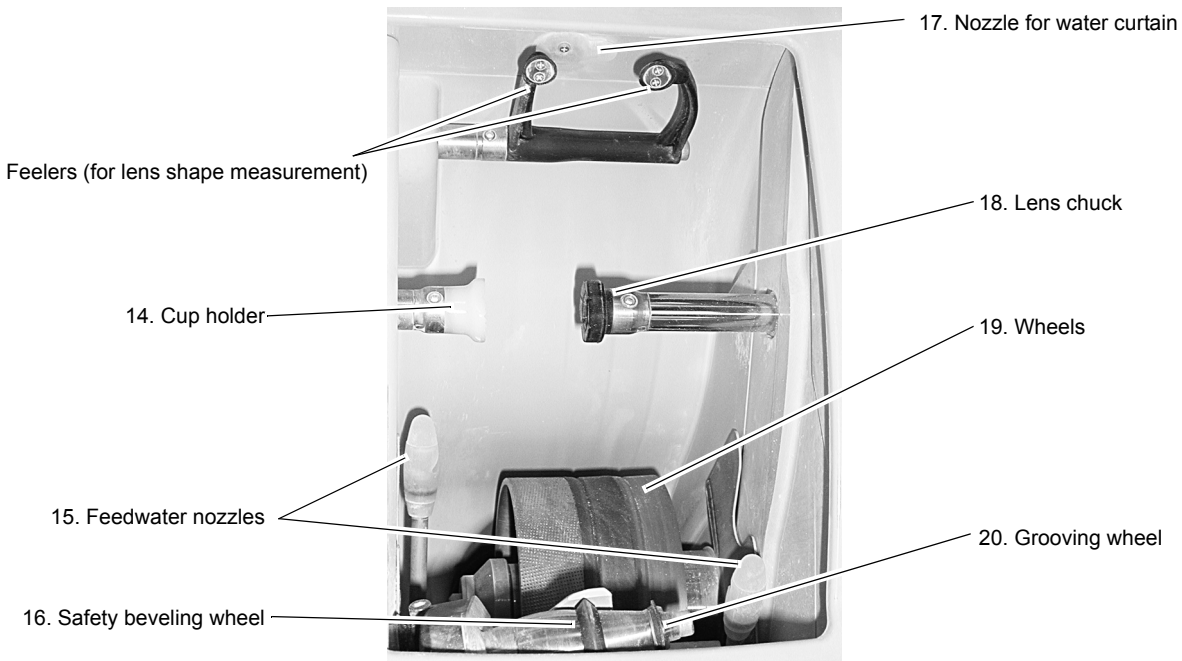
Adjusts the contrast of the display.

Set the contrast to the desired level for comfortable viewing.

13. Vent

Connects to the duct of the deodorizer LED-200.

○ Processing chamber



14. Cup holder

This part holds a lens blocked with a pliable cup.

15. Feedwater nozzles

Supply cooling water to the edging area of a lens being processed.

16. Safety beveling wheel

Safety bevels lenses. (S and SNT models only)

17. Nozzle for water curtain

Discharges the water curtain (cooling water) to keep the processing chamber clean.

18. Lens chuck

Presses against a lens set in the cup holder to secure it.

19. Wheels

The following wheels are provided.

[Wheel configurations]

a Roughing wheel for plastic lenses

b Roughing wheel for glass lenses

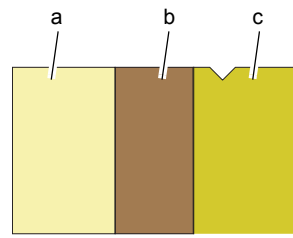
c Finishing wheel

d Polishing wheel

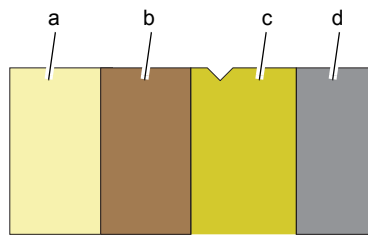
20. Grooving wheel (S and SNT models only)

Grooves lenses for nylon frames.

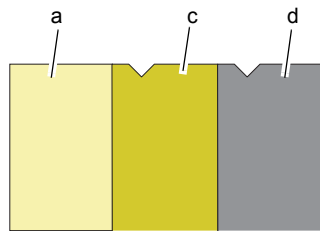
• PC type



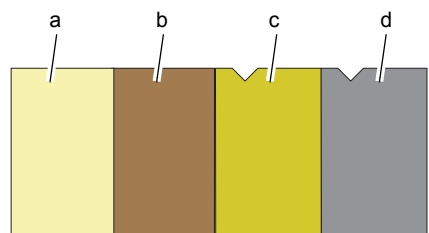
• PL-4 type



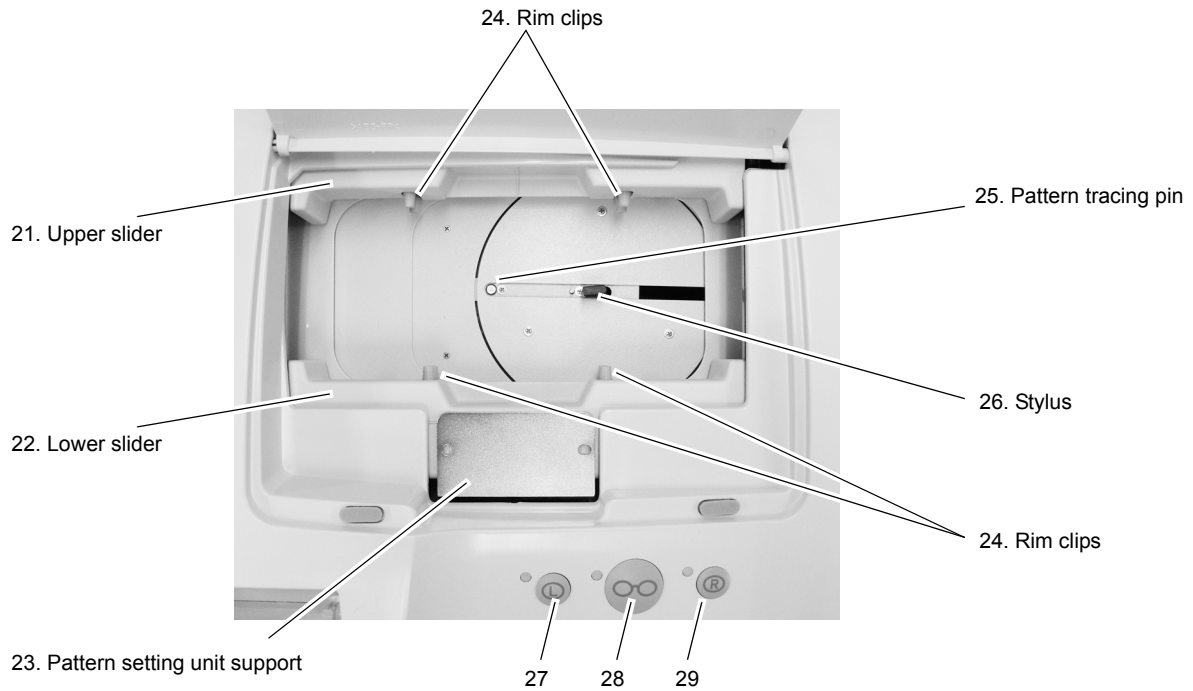
• PLB type



• PLB-2R type



○ Tracing unit (S and L models only)



21. Upper slider

22. Lower slider

Frames are fastened between these sliders.

23. Pattern setting unit support

Mounts the pattern setting unit set with a pattern or demo lens.

24. Rim clips

Hold the rim of frames.

Each upper and lower sliders has two clips.

25. Pattern tracing pin

Traces a pattern or demo lens to measure its shape.

Normally, the pin is stored in the tracer.

26. Stylus

Traces a frame groove to measure its frame shape.

27. (L) button

Starts left-eye tracing.

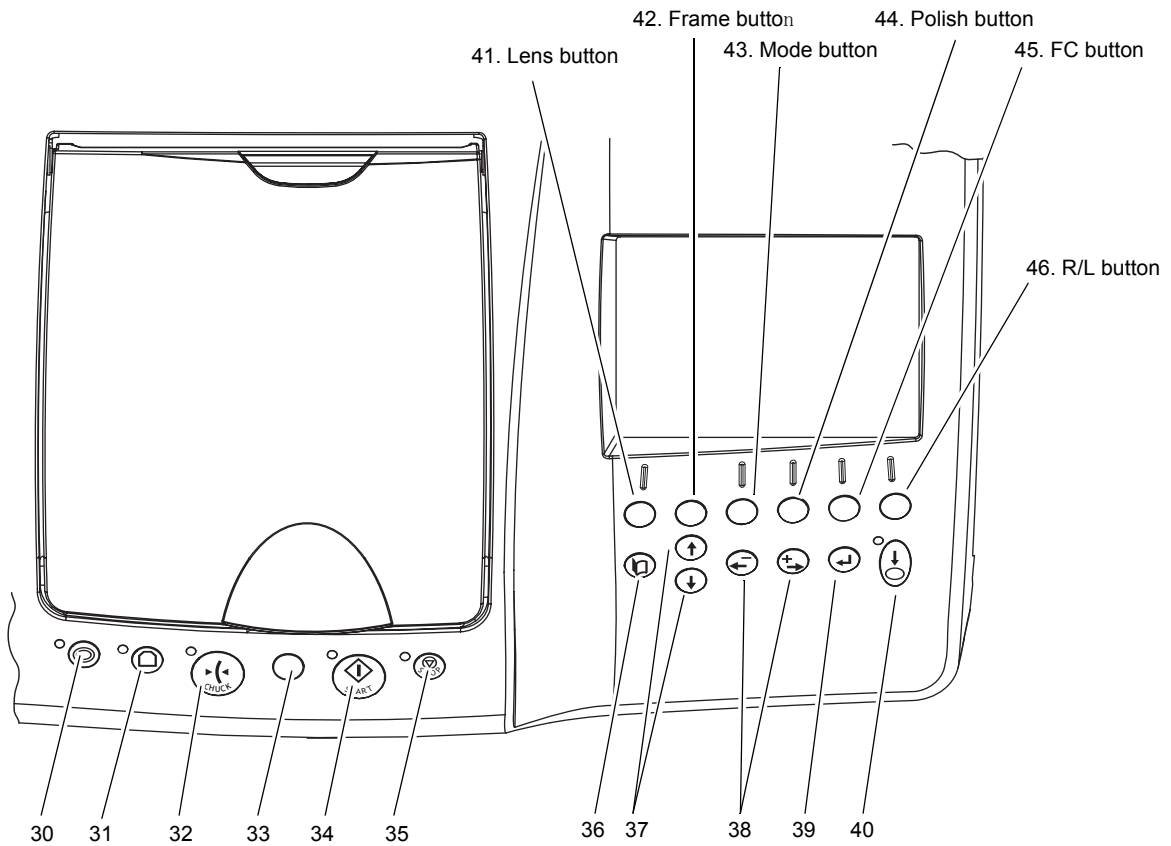
28. (Glasses) button

Starts both-eye tracing.

29. (R) button

Starts right-eye tracing.

○ Control panel



30.  button

Starts retouching.

31.  button (S and SNT models only)

Switches safety beveling on or off.

 Soft button (L and LNT models only)

Switches soft processing on or off.

32.  button

Secures a lens to or releases a lens from the lens chuck.

33. R/L indicator lamp

Lights up in green when the right-eye lens is selected and in red when the left-eye lens is selected.

34.  button

Starts processing.

35.  button

Stops processing.

36.  button


Switches the screen between the layout and menu.

When beveling or grooving a lens, pressing this button after lens shape measurement switches the screen to the simulation screen for checking the bevel or groove setting. However, the setting cannot be changed.

Pressing this button during guided processing switches the screen between simulation and layout.

37.  button,  button

Moves the cursor on the screen.

38.  button,  button

Enters the data such as prescription.

39.  button

Changes the layout entry method.

40.  button

Calls up the data measured by the tracing unit on the display.

41. Lens button

Used to select the lens material among PLA (plastic), HPL (high index plastic), PC (polycarbonate), ACR (acrylic resin), TRX (Trivex), PUR (polyurethane), and GLS (glass). (GLS cannot be selected in the PLB type.)

In addition, extended pressing of this button switches soft processing on or off.

42. Frame button

Used to select the frame type.

43. Mode button

Used to select processing mode.

Processing mode	Auto	Guide	EX	Flat	EX lens flat edging	Auto grooving	Guided grooving	EX lens grooving
Frame button	MTL/CEL	MTL/CEL	MTL/CEL	PNT/NYL	PNT	NYL	NYL	NYL
Mode button	AUT	GUI	EX	(Blank)	EX	AUT	GUI	EX

44. Polish button

Switches polishing on or off.

45. FC button

Switches frame changing mode on or off.

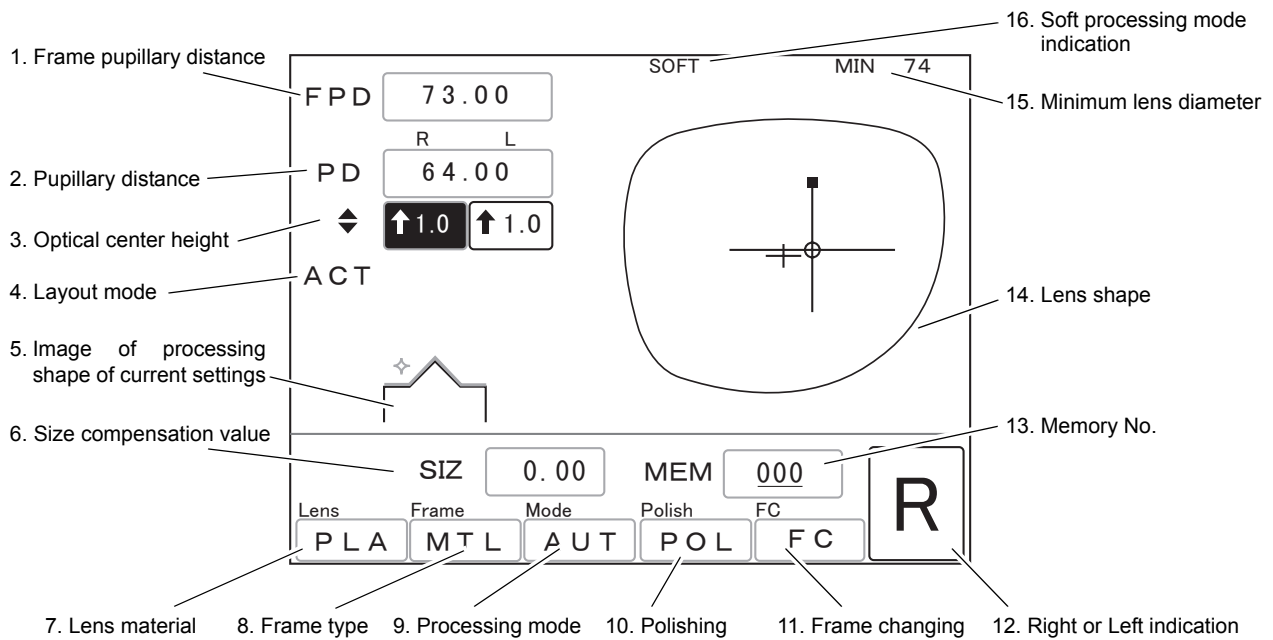
46. R/L button

Used to select the side of a lens to be processed, right (R) or left (L).


1.3 Screen Display Explanations

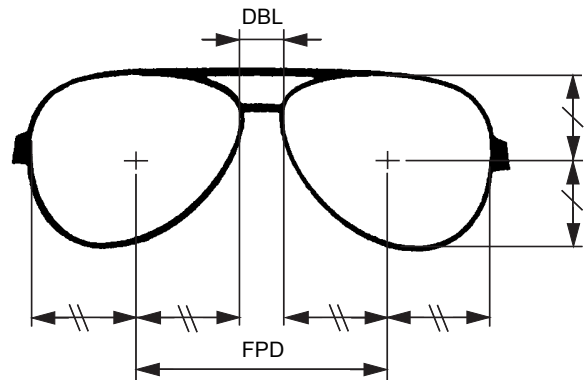
○ Layout screen

This screen is used for entering data such as lens layout and prescription.



1. Frame pupillary distance (FPD)

Distance between right and left frame centers
 [30.00 to 99.50 mm (in increments of 0.50 mm)]
 The FPD is calculated by the boxing system.
 Moving the cursor to this field and pressing  allows also the DBL to be entered.



2. Pupillary distance (PD)

Manually-entered prescribed pupillary distance
 [30.00 to 99.50 mm (in increments of 0.50 mm)]
 The monocular PD (1/2 PD) can be entered,

3. Optical center height (↕)

Height of the optical center from the frame center (boxing center)
 [↓15.0 to ↑15.0 mm (in increments of 0.1 mm)]

4. Layout mode

Displays the selected layout mode [ACT (active), BF (bifocal), or PAS (passive)].

5. Image of processing shape of current settings

The settings of beveling or flat edging, safety beveling on or off, polishing on or off, and grooving on or off are displayed by image.
 This image is not simulation of an actual lens edge.

6. Size compensation value (SIZ)

Compensation value for the desired lens finish size in diameter, based on the traced size of the frame or pattern (0.00).

[-9.95 to 9.95 mm (in increments of 0.05 mm)]

7. Lens material

Displays the selected lens material.

8. Frame type

Displays the frame material when of beveling. However, when of flat edging, PNT or NYL are displayed.

9. Processing mode

Displays the selected processing mode.

10. Polishing

Indicates that polishing mode is selected.

11. Frame changing

Indicates that frame changing mode is selected.

12. Right or Left indication

Displays the selected R or L side.

13. Memory No. (MEM) (S and L models only)

Enter a memory address here when storing or calling up shape data with the memory function. See "2.17 Storing and Calling Up Shape Data (Except for S and L Models)" (Page 91).

The number of the memory address in which data has been already stored is underlined.

The MEM field may not be displayed depending on the communication setting.

14. Lens shape

Plain figure of lens shapes in actual size.

15. Minimum lens diameter (MIN)

The minimum lens diameter required for processing is displayed.










This minimum lens diameter is provided just for reference. It is recommended to select a lens diameter of 2 or 3 mm larger than that displayed.

16. Soft processing mode indication (SOFT)

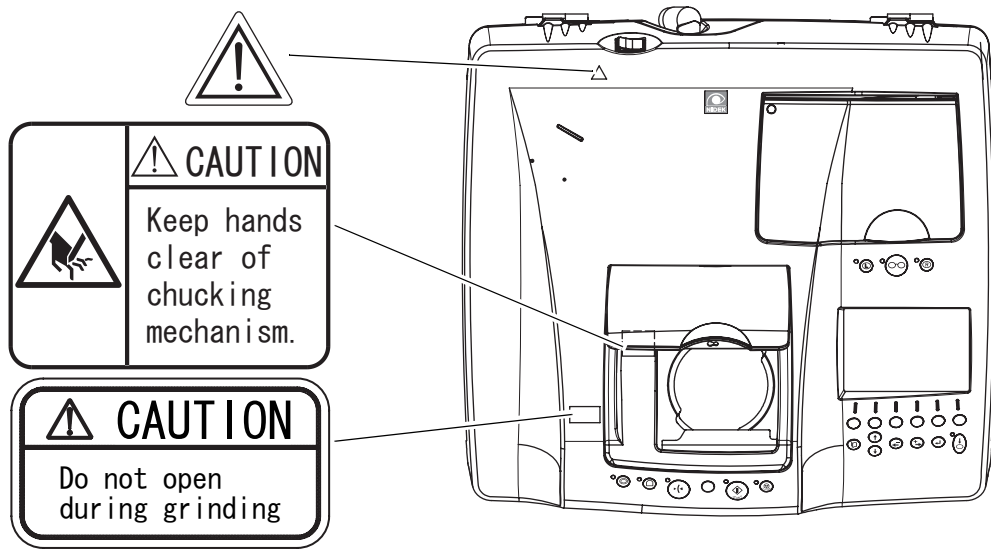
Indicates that soft processing mode is selected.

1.4 Labels and Indications on Instrument

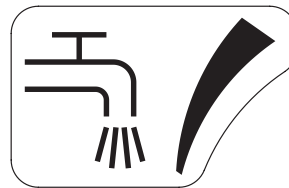
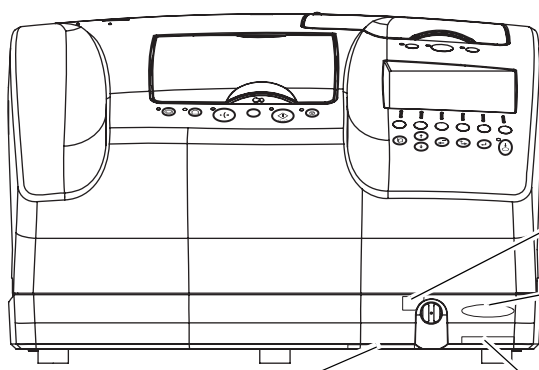
To call attention to users, some labels and indications are provided on the instrument. If labels are curling up or characters fading and becoming barely legible, contact NIDEK or your authorized distributor.

	Indicates that caution must be taken. Refer to the operator's manual before use.
	Indicates that caution must be taken to avoid cutting fingers.
	Indicates that the instrument must be supplied only with alternating current.
	Fuse
	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.
	Start
	Stop
	Smooth stepless control

[Top view]



[Front view]



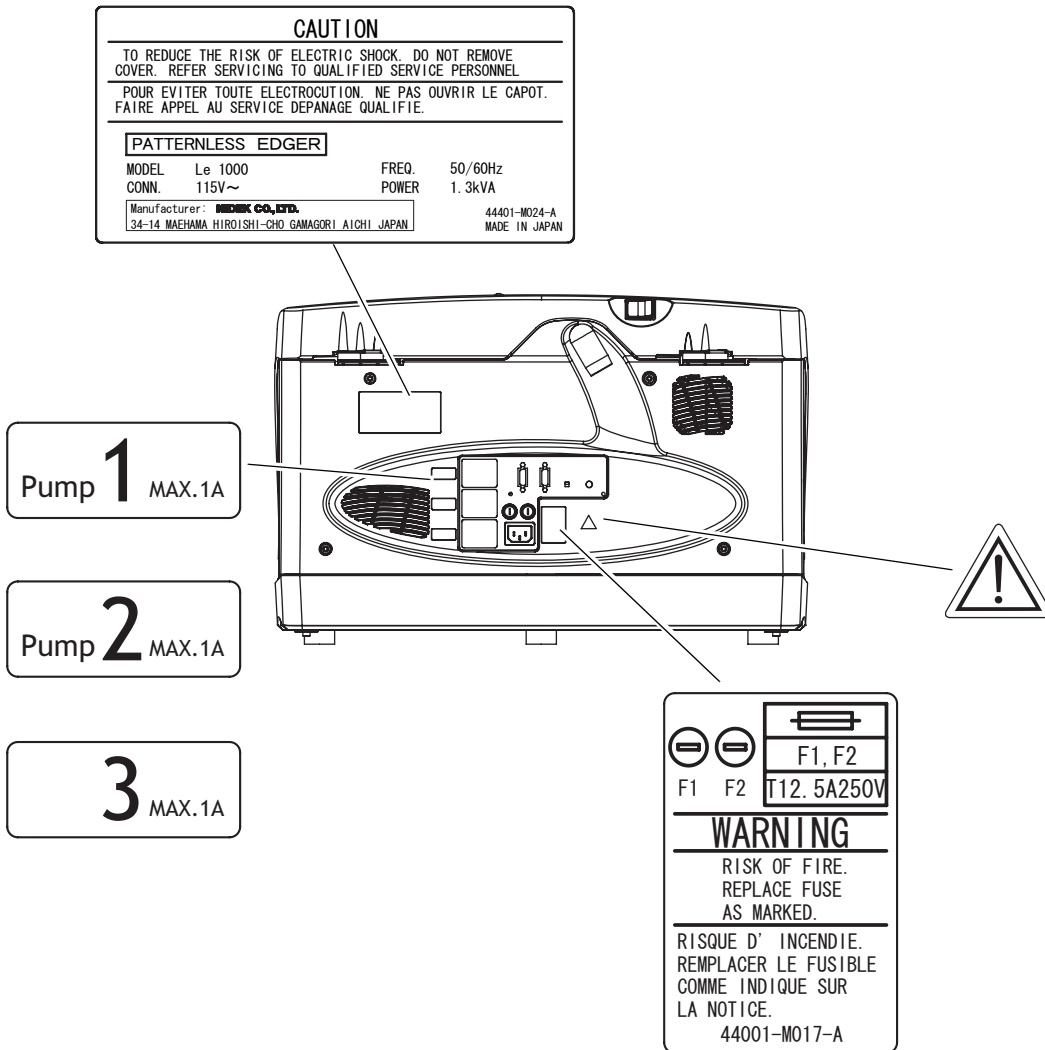
- | | | | |
|--------|----------|---------|------------|
| PC S | PL-4 S | PLB S | PLB-2R S |
| PC SNT | PL-4 SNT | PLB SNT | PLB-2R SNT |
| PC L | PL-4 L | PLB L | PLB-2R L |
| PC LNT | PL-4 LNT | PLB LNT | PLB-2R LNT |

Pump **1** Front

Pump **2** Rear

SER. NO. NNNNNN

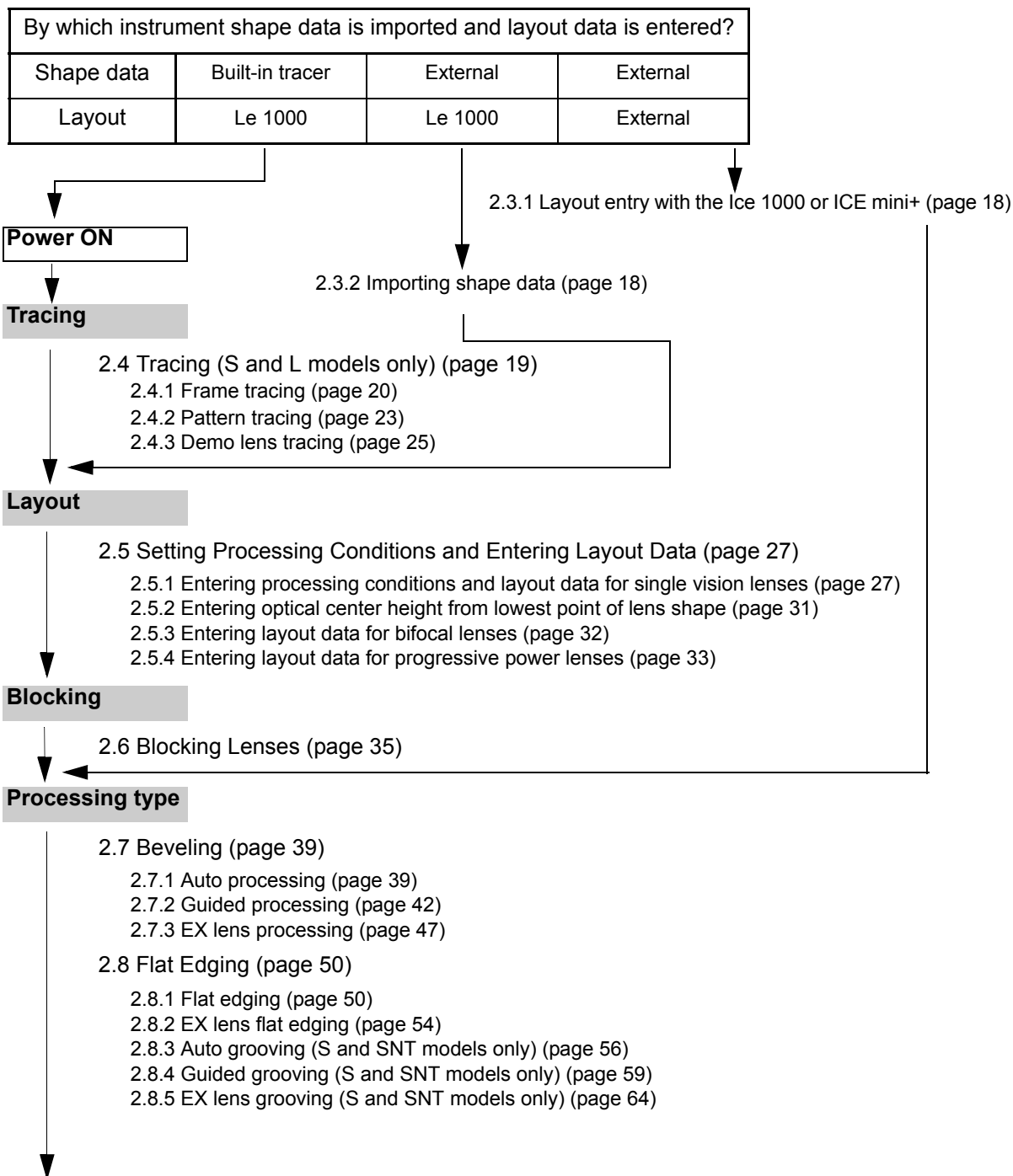
[Rear view]



2.

OPERATING PROCEDURES

2.1 Operation Flow



Size check



- 2.11 Checking Lens Size (page 81)
 - 2.11.1 Checking lens size (page 81)
 - 2.11.2 Retouching (page 81)

Processing of the other side lens



- 2.12 Processing the Other Side Lens (page 82)

Finish



Power OFF

2.2 Getting Started and Exiting

2.2.1 Getting started

- 1 Confirm that the power cord is connected to the inlet and outlet properly.

CAUTION • Confirm that the main power plug is fully inserted into the outlet.
Fire may occur if the instrument is used with a loose connection.

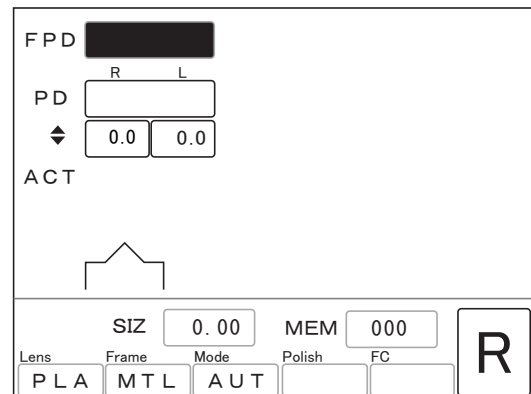
- 2 Turn the power on.

Turn ON (|) the power switch.

After initialization, the layout screen is displayed.

Note

- After power shutdown, do not turn the power on for about ten seconds.
The instrument may not operate normally.



- 3 Check visually that wheels are not be chipped or cracked.

WARNING • Be sure to check visually that wheels may not be chipped or cracked before processing.

If chipped or cracked wheels are used, they may break or shatter resulting in injury.

2.2.2 Exiting

- 1 Turn the power off while the instrument does not process or trace any lens.

Turn OFF (○) the power switch.

CAUTION • Do not turn the power off during processing and tracing.
Malfunction of the instrument may result.

2.3 Importing Shape Data from External

As the SNT and LNT models are not equipped with a tracer, it is necessary to import shape data by communication. (For shape data importing, refer to the operator's manual of the connected instrument.)

The importing method differs depending on the system configuration. One method is for layout data entered with the Le 1000. The other is for layout data entered as JOB data from some other instruments such as the Ice 1000 or ICE-9000.

2.3.1 Layout entry with the Ice 1000 or ICE mini+

For layout entry and its data transfer, refer to the operator's manual of the Ice 1000 or ICE mini+.

- * EX lens processing mode cannot be specified with the Ice 1000 and ICE mini+. Specify EX lens processing mode in the Le 1000. (see page 29)
- * The safety-beveled size cannot be selected. If any size among Small, Middle, Large, and Special is selected in the Ice 1000 or ICE-9000, the lens is safety-beveled with the same size.
- * The SNT and LNT models require an external tracer to use the ICE mini+.

⇒ Go to "2.6 Blocking Lenses" (page 35).

2.3.2 Importing shape data

The data importing method differs depending on the system configuration. Refer to the operator's manual of the connected instrument.

For example: One-to-one connection between the LT-900 and Le 1000

Press the  button twice.

⇒ Go to "2.5 Setting Processing Conditions and Entering Layout Data" (page 27).

2.4 Tracing (S and L models only)

There are the following types of tracing. Select the desired one.

Frame tracing (Both eyes)	Traces the both eyes of general frames. See "○ Both-eye tracing" (page 20).
Frame tracing (Single eye)	Traces the left- or right- eye of a general frame. See "○ Single-eye tracing" (page 21).
Semiauto tracing	When the stylus is not automatically set in the groove at the start of frame tracing. See "○ Semiauto tracing" (page 21).
Goggle type frame tracing	When the stylus comes off the groove of the sharply warped frame during tracing. Hold by hand the frame not being traced. See "○ Goggle type frame tracing" (page 22).
Pattern tracing	Traces the patterns of two-point or nylon frames and so on. See "2.4.2 Pattern tracing" (page 23).
Demo lens tracing	Traces mounted lenses in the same manner as the pattern tracing. See "2.4.3 Demo lens tracing" (page 25).

2.4.1 Frame tracing



- For rims with low stiffness such as thin rim frames, only perform demo lens tracing. Distortion may occur and correct measurement cannot be obtained from frames with low stiffness.

○ Both-eye tracing

Measures the frame shapes for both eyes as well as the FPD.

1 Set frames into the tracing unit.

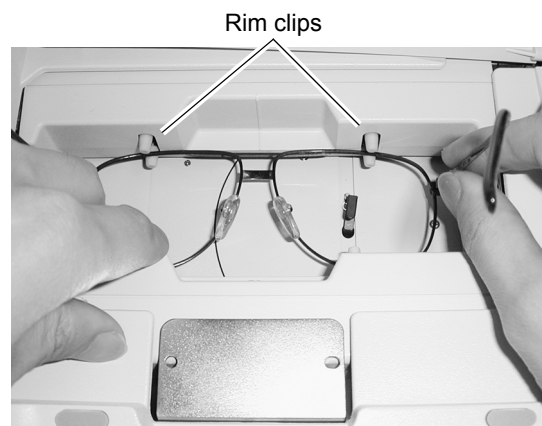
- 1) Open the tracing unit lid.
- 2) Set the top of the frames.

Pull forward the lower slider and fasten the frame top between the rim clips on the upper slider.

- 3) Set the bottom of the frames.

Slowly release the lower slider, placing the frame bottom between the rim clips on the lower slider.

- 4) Move the frames left or right to bring them to the approximate center of the tracing unit.



2 Start both-eye tracing.

Press the  button.

Tracing is completed when the frames are released.






3 Call up the trace data.

Press the  button.

The lens shapes are displayed on the screen.

4 Pull the lower slider forward to remove the frames.



- When there is a difference of 1 mm or more in circumference between the left and right frames, a tracing error occurs causing retracing to start automatically and the LEDs of the  button and  button to blink for a few seconds. The trace data cannot be read even though the  button is pressed. In such a case, perform single-eye tracing.


○ Single-eye tracing


Traces the frame for either eye.

1 Set frames into the tracing unit.

See "○ Both-eye tracing" (page 20).

2 Press the button or button.

For tracing the left-eye frame ⇒  button

For tracing the right-eye frame ⇒  button



- The FPD (frame pupil distance) cannot be measured during single-eye tracing. Enter the FPD value manually on the layout screen.

2

○ Semiauto tracing

Fit the stylus into the groove by hand before tracing for the frame whose stylus is not automatically set in the groove. This is for frames, especially plastic ones, whose grooves are not in the middle of the edges.

1 Set frames into the tracing unit.

See "○ Both-eye tracing" (page 20).

2 Press the button*1 for three seconds.

The stylus moves and pauses in the tracing start position.

3 Fit the stylus into the groove by hand.

4 Start tracing.

Press the  button.

After tracing one frame, the stylus moves to another frame and pauses in the tracing start position.

5 Trace the other frame in the same manner as Steps 3 and 4.

*1. For single-eye tracing, press the  button or  button for three seconds.

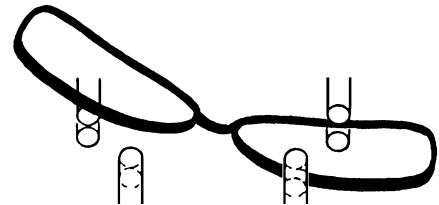
○ Goggle type frame tracing

When the frames are sharply warped, the stylus may come off the groove. In such a case, fasten only the one frame between the rim clips and perform single-eye tracing.

This tracing is available in both left and right frames. The procedure for tracing the right frame is described here.

1 Set the right frame in the tracing unit so that the frame becomes level.

- Do not fasten the left frame between the rim clips.
- Hold the left temple to maintain the right frame level.



Side not to be traced

Hold the frame by finger.
Do not fasten it between the rim clips.

Side to be traced

Make the frame level.
Fasten it between the rim clips.

2 Start tracing.

Press the  button.

 Note

- The rim clips fasten the right frame. However, do not release the left frame until tracing is completed.

When the frame moves, tracing is not performed accurately.



3 Call up the trace data.

Press the  button.

The lens shapes are displayed on the screen.

4 Remove the frames from the tracing unit.

 Note

- The FPD (frame pupil distance) cannot be measured during goggle type frame tracing. Enter the FPD value manually on the layout screen.

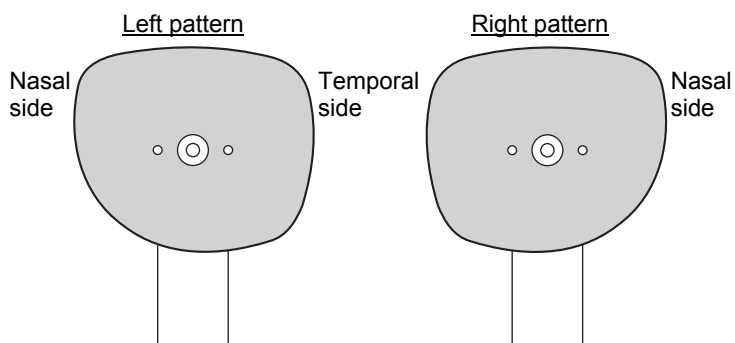
2.4.2 Pattern tracing

1 Set a pattern onto the pattern setting unit.

- 1) Set the pattern while pressing the white button on the pattern setting unit.

Push the pattern as far as it will go.

The pattern is attached as follows:



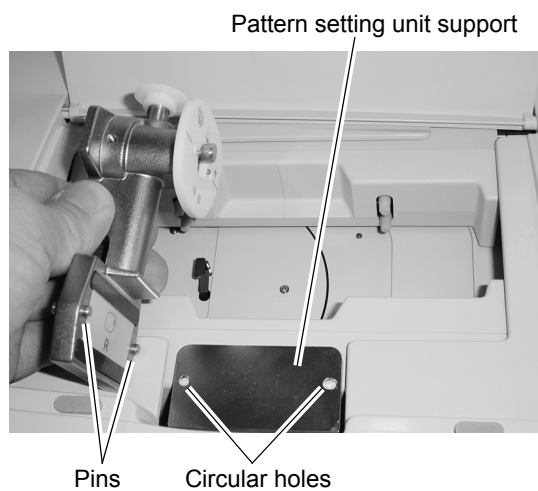
- 2) Release the white button to lock the pattern.

2 Set the pattern setting unit to the tracing unit.

- 1) Open the tracing unit lid.
- 2) Set the pattern setting unit to the tracing unit.

Pull the lower slider forward and set the pattern setting unit onto the pattern setting unit support.

Align the two pins of the pattern setting unit to the circular holes on the pattern setting unit support.



The pattern setting unit is fastened to the pattern setting unit support by magnet.

2

3 Press the **(L)** button or **(R)** button.

For tracing the right-eye pattern

⇒ **(R)** button

For tracing the left-eye pattern

⇒ **(L)** button

The tracing pin comes out and then tracing starts.



4 Remove the pattern setting unit after tracing.

When tracing is completed, the tracing pin is automatically stored.

Lifting the left side first makes removing the pattern setting unit easier.

Note

- The FPD (frame pupil distance) cannot be measured during pattern tracing. Enter the FPD value manually on the layout screen.

The pattern setting unit can be inserted into the notch located in the left back of the instrument when not in use.



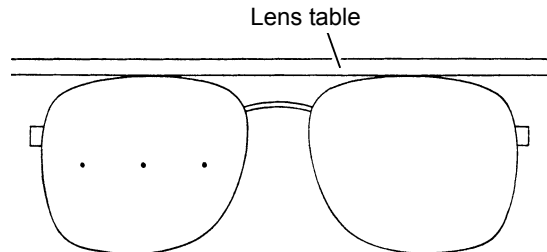
Notch for pattern setting unit

2.4.3 Demo lens tracing

1 Block the convex surface of a demo lens with a pliable cup.

- 1) Mark the approximate center of the demo lens with a lensmeter.

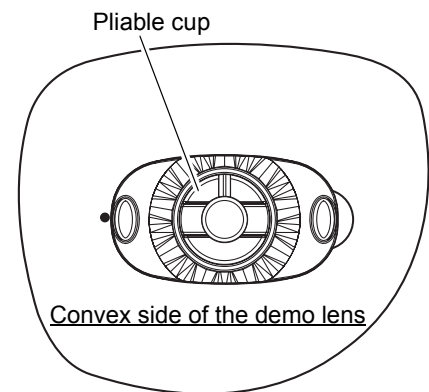
At this time, the frame must be contact with the lens table while the demo lens is mounted in the frame.



- 2) Stick a double-sided adhesive pad for the pliable cup on the pliable cup.

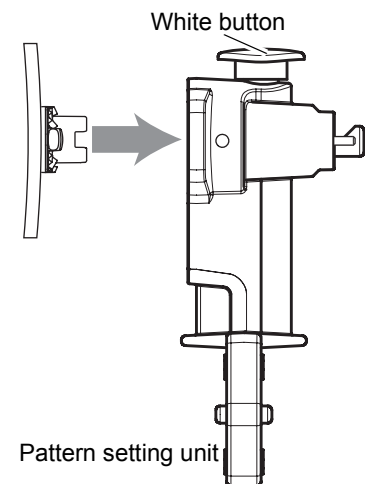
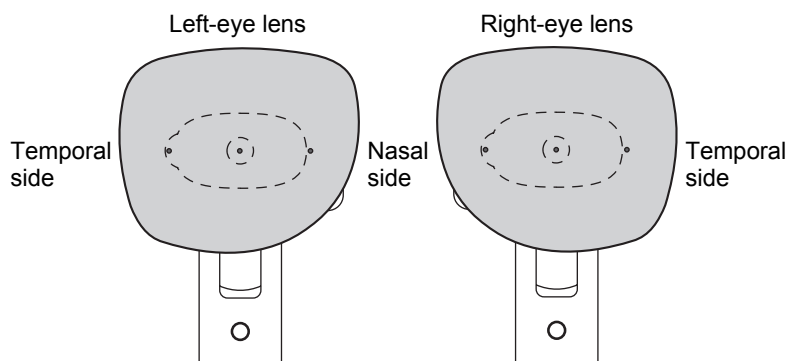
- 3) Block the **convex** surface of the demo lens with the pliable cup using a centering device.

Block the lens so that the markings on the demo lens are aligned to the groove orientation of the pliable cup.



2 Set the pliable cup to the pattern setting unit.

Set the pliable cup while pressing the white button on the pattern setting unit.



3 Start tracing in the same manner as Steps 2 to 4 of "2.4.2 Pattern tracing" (page 23).



However, press the (L) button for the right eye or the (R) button for the left eye of demo lens tracing.

Note

- The FPD (frame pupil distance) cannot be measured during demo lens tracing. Enter the FPD value manually on the layout screen.

2.4.4 Tracing during processing


Tracing for next frames is possible during processing.

- 1** Set frames and press the  button.
- 2** After processing is completed, pressing the  button reads the one trace data from the tracing unit.


2.4.5 Stopping tracing

Follow the following procedures to stop tracing.

○ Stopping frame tracing

- 1** Press the  button.
The stylus moves to the original position and frames are released.

○ Stopping pattern or demo lens tracing

- 1** Press the  button.
The pattern tracing pin is stored.
- 2** Remove the pattern setting unit.

2.5 Setting Processing Conditions and Entering Layout Data






2.5.1 Entering processing conditions and layout data for single vision lenses

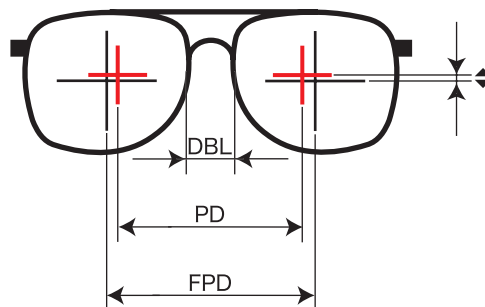
1 Enter lens layout data.

Enter the FPD, PF, and optical center height.





1) Enter the FPD value*1 if necessary.

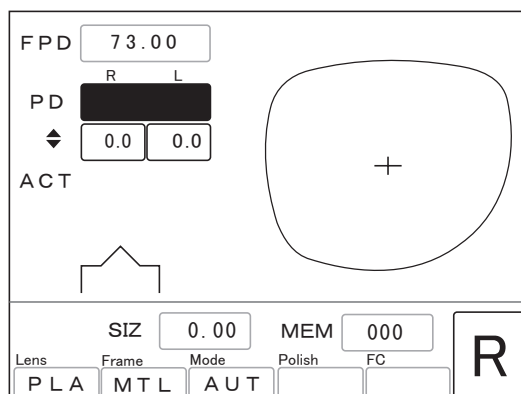
When both frames are traced, the FPD value is automatically entered together with the traced shape data.

Move the cursor () to the FPD numeric field with the  or  button and enter the value with the  or  button.








2) Enter the PD value*2 from the prescription.


Move the cursor () to the PD numeric field with the  button and enter the value with the  or  button.

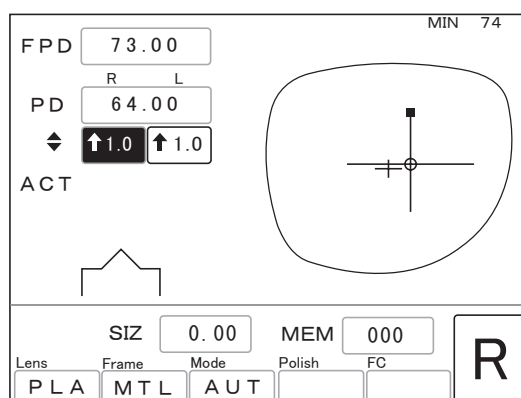


3) Enter the optical center height for the right-eye lens.


Move the cursor () to the numeric field for the right-eye lens of  with the  button and enter the value with the  or  button.

It is possible to enter the height from the lowest point of the lens shape.

When the numeric field for the right-eye lens of  is selected first, the value for the left-eye lens is automatically entered at the same time as the value for the right-eye lens is entered. In this case, the numeric field for the left-eye lens is displayed with a black background.



*1. The DBL (width between the nasal ends of the left and right frames) can also be entered instead of the FPD.

Move the cursor to the FPD numeric field and press the  button to switch the indication from FPD to DBL.

*2. It is possible to enter the distance from the bridge center to each eye separately.

Move the cursor to the PD numeric field and press the  button to switch the indication from PD to 1/2PD.

- 4) If there is a difference in the optical center height between the right-eye and left-eye lenses, enter the optical center height for the left-eye lens.

Move the cursor (█) to the numeric field for the left-eye lens of ◀ with the (↓) button and enter the value with the (←) or (→) button.

- 5) Change layout mode if necessary.

Move the cursor (█) to the layout mode indication (ACT, PAS, BF) with the (↑) or (↓) button and change the setting with the (↵) button.

When blocking a lens with a pliable cup at the optical center ⇒ Select ACT.

When blocking a lens with a pliable cup at the frame center ⇒ Select PAS.

When of bifocal or trifocal lenses ⇒ Select BF.

- 6) To correct the finish size, move the cursor (█) to the SIZ numeric field and enter the value with the (←) or (→) button.

(For example) +1.00: The finish size becomes larger by 1 mm.

The minimum lens diameter required for processing is displayed as the MIN in the upper part of the screen.

Note

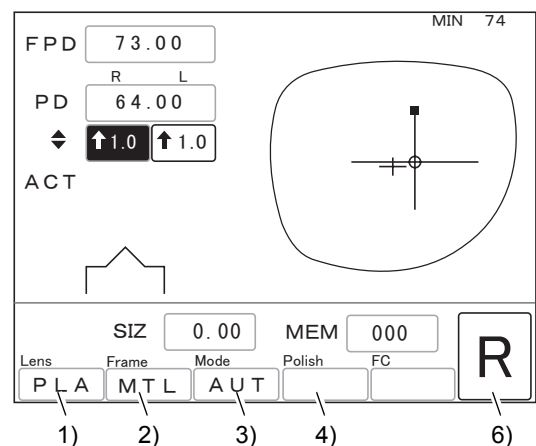
• This minimum lens diameter is provided just for reference. It is recommended to select a lens diameter of 2 or 3 mm larger than that displayed as the optical center may be shifted from the lens diameter center.

2 Select processing conditions.

- 1) Select the material of a lens to be processed.

Each press of the Lens button changes the lens material setting in order.

- PLA (general plastic)
- HPL*1 (high index plastic)
- PC (polycarbonate)
- ACR (acrylic resin)
- TRX (a plastic that tends to meld during processing)
- PUR (polyurethane)
- GLS*2 (glass)



CAUTION Be sure to select the correct lens material.
Failure to do so could shorten the useful life of the processing wheel.

*1. Select HPL when processing plastic lenses which produce burrs or chips easily.
*2. Glass lenses cannot be processed with the PLB type.

2) Select the desired frame type.

Each press of the Frame button changes the frame type setting.

- MTL (metal)
- CEL (celluloid frame)
- PNT (two point)
- NYL (nylor)

Flat edging ⇒ Select PNT or NYL depending on the frames.

Beveling ⇒ Select MTL or CEL depending on the frames.

3) Select processing mode.

Each press of the Mode button changes the processing mode setting.

Processing mode is selected with the Frame and Mode buttons as shown on the table below.

Processing	Processing mode	Frame button setting	Mode button setting
Beveling	Auto	MTL/CEL	AUT
	Guide		GUI
	EX		EX
Flat edging	Flat	PNT/NYL	(Blank)
	EX lens flat edging	PNT	EX
	Auto grooving	NYL	AUT
	Guided grooving		GUI
	EX lens grooving		EX

Select an optimum mode depending on the lens type for beveling.

Processing mode		AUT	GUI				EX
			CRV	FRNT	REAR	RATIO	
Single vision lens		⊙	⊙			○ ^a	
Special order lens	Progressive	⊙	⊙				
	Bifocal	⊙	⊙				
	Cataract				⊙		○
	EX						⊙

a. Select a ratio referring to the following.

- + low single vision lens ⇒ 5:5
- + medium and low single vision lens, – low single vision lens ⇒ 4:6 or 5:5
- medium single vision lens ⇒ 3:7 or 4:6
- high single vision lens ⇒ 3:7

⊙: Optimum mode, ○: Recommended mode

Note

- EX lenses cannot be processed in auto or guided processing mode.
The feelers may be damaged in auto or guided processing mode. Be sure to check the bevel and groove positions and process the EX lens in EX lens processing mode.
- Cataract lenses cannot be processed in auto processing mode.
Be sure to select the rear-based curve in guided processing mode and check the bevel and groove positions before processing.
However, a lens measurement error may occur in a cataract lens with a large protrusion on its front convex surface. In such a case, process the cataract lens in EX lens processing mode.

4) Press the Polish button to polish the lens.

Each press of the Polish button switches polishing on and off. The indication in the Polish field changes as follows.

POL: Polishing

Blank: No polishing



- Polishing is unavailable for glass lenses.
- Polishing cannot be selected in the PC type.
- In the PL-4 type, polishing can be selected only for flat edging.

5) Press the button to safety bevel the lens. (S and SNT models only)

Each press of the button switches safety beveling on and off.

When safety beveling is available, the LED of the button lights up and the change of the safety-beveled edge is updated to the image of processing shape for current settings.

6) Select a lens to be processed between R (light-eye lens) and L (left-eye lens) with the R/L button.

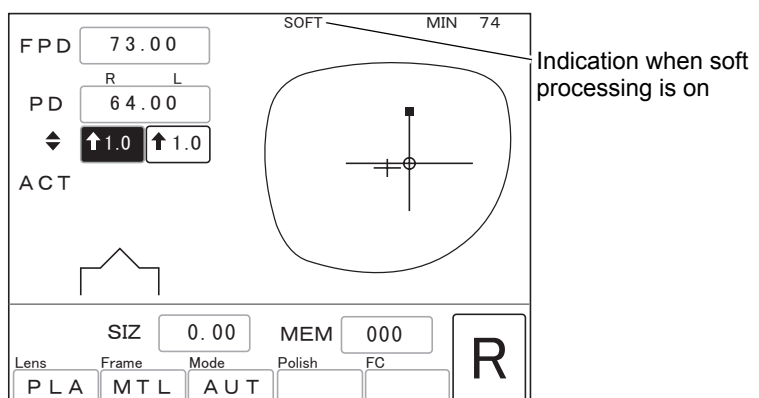
7) Confirm that the optical center mark in the lens shape area is . (only when the optional mini cup set is used)

When the optical center mark is , it is necessary to use the mini cup. See “2.6.4 Blocking with mini cup (The optional mini cup set is required.)” (page 38).

○Activating soft processing

For processing lenses with a slippery coating, activate soft processing to reduce the axis shift due to slippage. In addition, should a glass lens break during processing, soft processing can be selected to protect the lens from breaking again.

Soft processing is the method to control the roughing process more accurately. The processing time may increase slightly but the processing noise is reduced as is the axis shift during processing.






Extended pressing of the Lens button switches soft processing on and off.


When soft processing is on, SOFT is displayed at the top of the screen.


Press of the button can also switch soft processing on and off in the L and LNT models.

2.5.2 Entering optical center height from lowest point of lens shape

1 Select the entry method.

Move the cursor () to the numeric field of  and select either of the following with the  button.

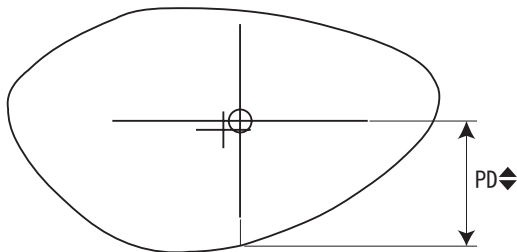
PD Enter the distance between the optical center and the straight down point of the lens shape.



BT Enter the distance between the optical center and the lowest point of the lens shape.

2 Enter the optical center height.

(For example) When the distance between the optical center and the straight down point of the lens shape is 13.6 mm

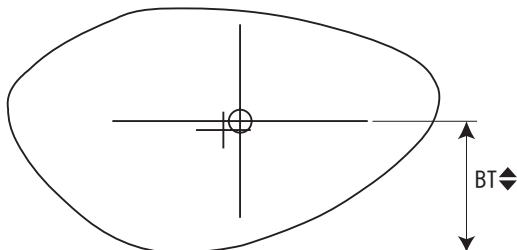
PD  : 13.6





FPD	65.70	MIN 53	
	R	L	
PD	62.00		
PD 	13.6	13.6	
ACT			
			
SIZ	0.00	MEM	000
Lens	Frame	Mode	Polish
PLA	MTL	AUT	FC
			R

(For example) When the distance between the optical center and the lowest point of the lens shape is 14.3 mm

BT  : 14.3



FPD	65.70	MIN 53	
	R	L	
PD	62.00		
BT 	14.3	14.3	
ACT			
			
SIZ	0.00	MEM	000
Lens	Frame	Mode	Polish
PLA	MTL	AUT	FC
			R

2.5.3 Entering layout data for bifocal lenses

1 Select processing conditions.

See Step 2 of “2.5.1 Entering processing conditions and layout data for single vision lenses” (page 27).

2 Select BF as layout mode.

3 Enter the prescribed near PD value (PD for the segment) in the PD numeric field.

4 Move the cursor (█) to the numeric field of \blacklozenge and select PD \blacklozenge or BT \blacklozenge with the J button.

5 Enter the height of the segment base point.

PD \blacklozenge : Distance from the center point on the top line of the segment straight down to the point on the lens shape

BT \blacklozenge : Height from the point level with the center of the segment of the top line straight down to the lowest point on the lens shape

MIN 74

FPD 73.00

R L

PD 64.00

0.0 0.0

BF

SIZ 0.00 MEM 000

Lens Frame Mode Polish FC

PLA MTL AUT R

MIN 74

FPD 73.00

R L

PD 62.00

PD \blacklozenge 13.1 13.1

BF

SIZ 0.00 MEM 000

Lens Frame Mode Polish FC

PLA MTL AUT R

See “2.6.3 For bifocal lenses” (page 37) for blocking.

2.5.4 Entering layout data for progressive power lenses

1 Select processing conditions.

See Step 2 of “2.5.1 Entering processing conditions and layout data for single vision lenses” (page 27).

2 Select ACT as layout mode.

3 Enter the prescribed PD value in the PD numeric field.

4 Enter the height of the eye point.

See “2.5.2 Entering optical center height from lowest point of lens shape” (page 31).

See “O For progressive power lenses” (page 35) for blocking.

The screenshot shows a software interface for entering layout data for progressive power lenses. The interface includes the following elements:

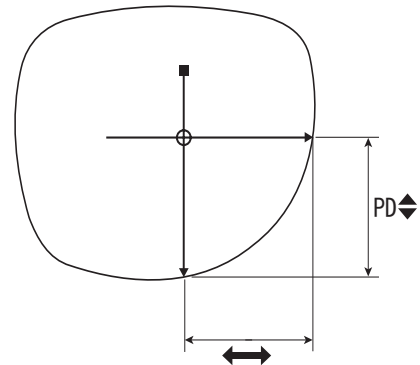
- Input Fields:**
 - FPD: 73.00
 - PD: 64.00 (with sub-fields for R and L)
 - PD: 23.2 (with a dropdown arrow) and 23.2
 - ACT: (selected mode)
 - SIZ: 0.00
 - MEM: 000
- Diagram:** A diagram of a lens shape with a vertical line indicating the optical center height from the lowest point. A small circle with a crosshair is positioned at the optical center. The text "MIN 74" is visible in the top right corner of the diagram area.
- Control Panel:**
 - Buttons for Lens: PLA, MTL, AUT
 - Buttons for Frame: (empty), (empty)
 - Buttons for Mode: (empty), (empty)
 - Buttons for Polish: (empty), (empty)
 - Buttons for FC: (empty), (empty)
 - A large button labeled "R" is located on the right side of the control panel.



2

2.5.5 Entering eye point layout


This is the method for determining the optical center position according to the distance entered from the nasal end and bottom of the lens shape.


It is for entering layout data based on the eye point position marked on the demo lens.

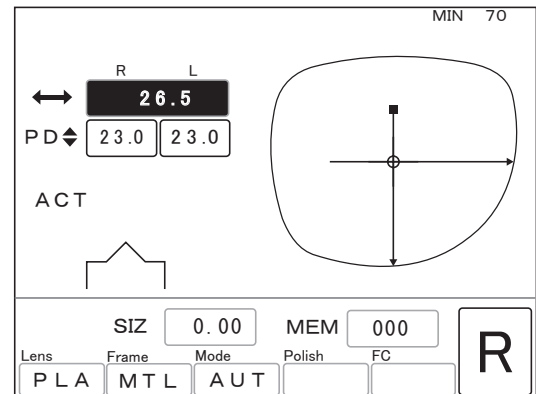



- 1 Move the cursor () to the FPD numeric field and press the  button twice.


The display changes as shown to the right.

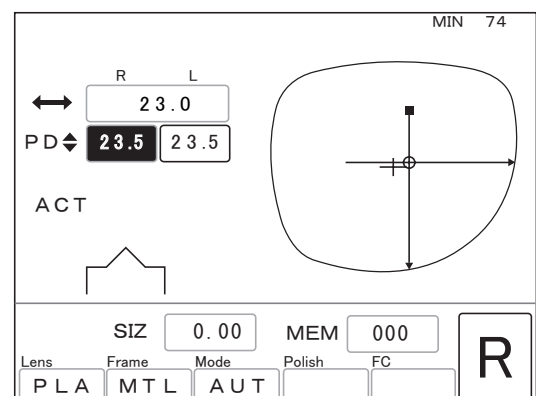
The mark  indicates the eye point position within the lens shape.

Pressing the  button again returns to the former screen displaying the FPD.



- 2 Enter the distance from the nasal end of the lens shape to the eye point in the numeric field of .

- 3 Enter the length from the eye point straight down to the lens bottom in the numeric field of .



2.6 Blocking Lenses

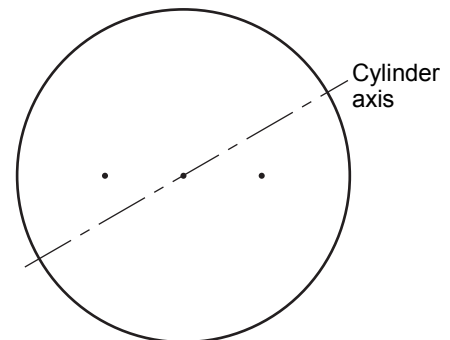
The position of blocking a lens with a pliable cup differs depending on the three layout modes of Active (ACT), Bifocal (BF), and Passive (PAS).

2.6.1 Blocking when processing in Active mode

1 Mark the lens at the optical center with a lensmeter.

When the lens contains cylindrical power, set the cylinder axis according to the prescription before marking.

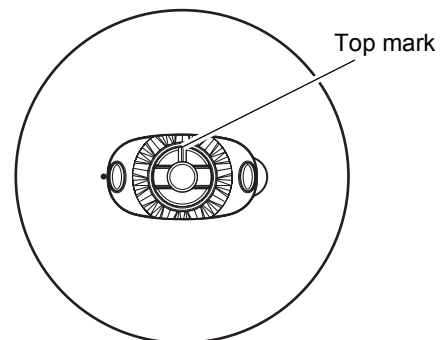
It is recommended to use a NIDEK auto lensmeter.



2 Stick a double-sided adhesive pad for the pliable cup on a pliable cup. Block the convex surface of the lens with the cup.

Align the top mark on the pliable cup with the lens top side. Especially check the right-side up of dual-tone colored lenses and make the dyed line level.

It is recommended to use the NIDEK centering device CE-9.



Note

- The pliable cup comes into types: green and red. Use the green pliable cup for the right-eye lens and the red one for the left-eye lens.

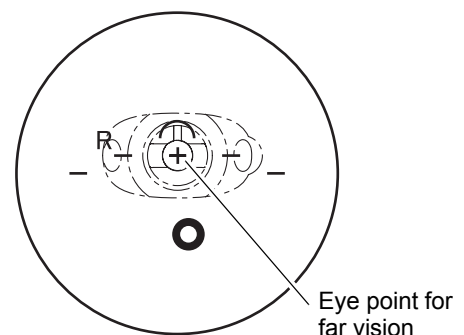
Using the same color cup as the color of the R/L lamp allows the lenses to be distinguished from each other. This prevents confusion of the right and left lenses.

- Select a lens whose diameter is sufficient.

If the lens diameter is insufficient, the feelers are detached during lens shape measurement resulting in malfunction.

○ For progressive power lenses

Block the lens at the marked eye point for far vision with a centering device.

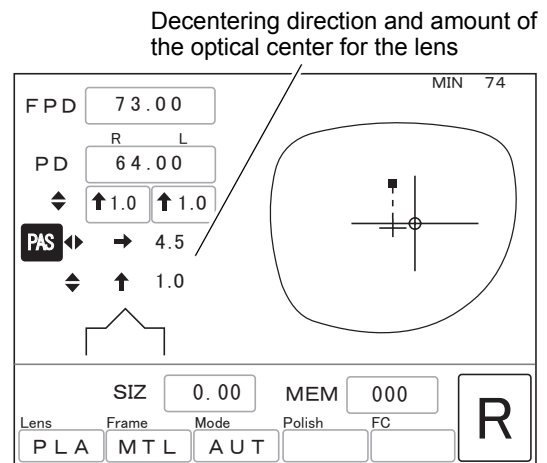


2.6.2 Blocking when processing in Passive mode

When the layout data is entered, the decentering direction and amount of the optical center are displayed in the PAS \blacktriangleleft \blacktriangleright field. Decentering according to the information allows the lens to be blocked at the frame center.

- 1 Mark the lens at the optical center with a lensmeter.

See Step 1 of “2.6.1 Blocking when processing in Active mode” (page 35).



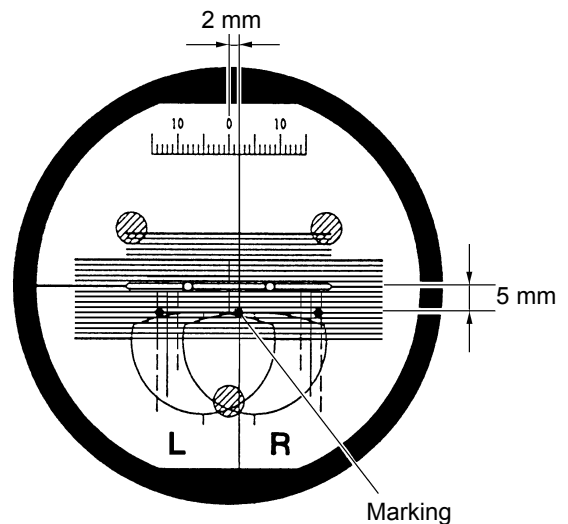
- 2 Block the convex surface of the lens with a pliable cup.

Decenter the optical center according to the information displayed in the PAS \blacktriangleleft \blacktriangleright field.

(For example) PAS \blacktriangleleft \blacktriangleright \rightarrow 2.0

\blacktriangledown \blacktriangleup \downarrow 5.0

Decenter the optical center by 2.0 mm to the right and 5.0 mm downward.



When using the NIDEK centering device CE-9

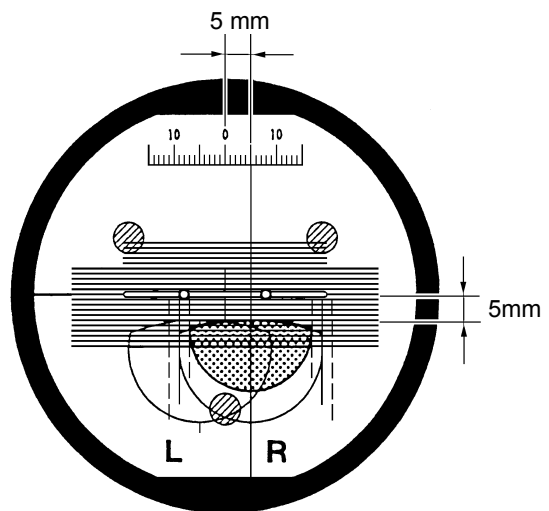
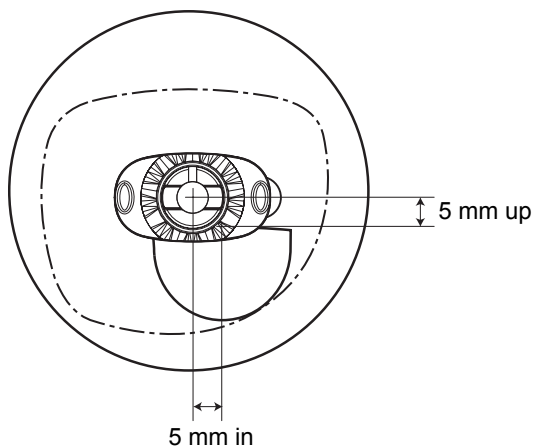
Note

- The pliable cup comes into types: green and red. Use the green pliable cup for the right-eye lens and the red one for the left-eye lens.
Using the same color cup as the color of the R/L lamp allows the lenses to be distinguished from each other. This prevents confusion of the right and left lenses.
- Select a lens whose diameter is sufficient.
If the lens diameter is insufficient, the feelers are detached during lens shape measurement resulting in malfunction.

2.6.3 For bifocal lenses

When Bifocal mode is selected as layout mode, shift the pliable cup from the midpoint of the segment top by the amount specified on the Parameter exchange mode screen. Then, block the lens. Block the lens according to the specified value as processing is performed with the value.

Block the lens with the pliable cup using a centering device in the 5 mm in and 5 mm up position from the midpoint of the segment top. (When using the NIDEK centering device CE-9)



When using the NIDEK centering device CE-9

Note




- In the factory setting, the decentration amount is 5 mm in and 5 mm up when the NIDEK centering device CE-9 is used. (The CE-9 has the segment layout mark on the screen. It allows the lens to be blocked in the 5 mm in and 5 mm up position easily.)
- When using other centering device, set the decentration amount corresponding to the device. See "2.15 Setting Parameters" (page 86).
- The pliable cup comes into types: green and red. Use the green pliable cup for the right-eye lens and the red one for the left-eye lens.

Using the same color cup as the color of the R/L lamp allows the lenses to be distinguished from each other. This prevents confusion of the right and left lenses.
- Select a lens whose diameter is sufficient.

If the lens diameter is insufficient, the feelers are detached during lens shape measurement resulting in malfunction.

2.6.4 Blocking with mini cup (The optional mini cup set is required.)

Normally, a pliable cup is used for blocking. However, when processing a lens for frames of short height, the pliable cup contacts the wheels, interfering with processing.

In such a case, the optical center mark on the layout screen changes from  to . Block the lens with a mini cup when the optical center mark changes to .

 Note

- The mini cup set is optional.
- The setting for optical center mark change is activated when the mini cup set is bought.

1 Replace the cup holder and lens chuck with those for mini cups.

1) Remove the standard cup holder.

Loosen the set screw with a hexagonal screwdriver to remove the cup holder.

2) Remove the standard lens chuck.

Loosen the set screw with a hexagonal screwdriver to remove the lens chuck.

3) Attach the cup holder for mini cups.

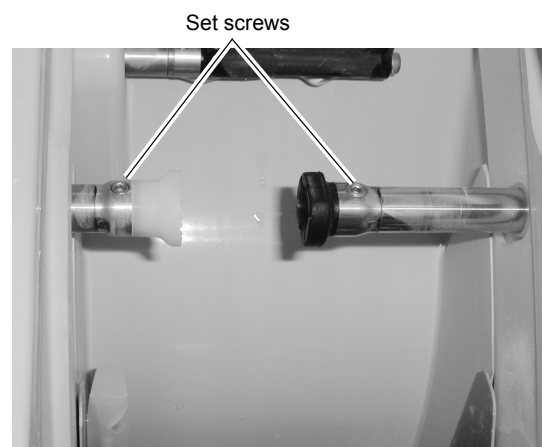
While aligning the grooves on the cup holder with the pins, insert the cup holder with the set screw facing up.

Secure the holder by tightening the set screw with the hexagonal screwdriver.

4) Attach the lens chuck for mini cups.

While aligning the grooves on the lens chuck with the pins, insert the lens chuck with the set screw facing up.

Secure the holder by tightening the set screw with the hexagonal screwdriver.



2 Stick the double-sided adhesive pad for the pliable cup on the mini cup.

Trim away the excess part along the edge of the cup.

3 Block the lens with the mini cup.

4 Set the lens and press the button to start processing.

5 Replace the cup holder and lens chuck with the standard ones after processing with the mini cup.

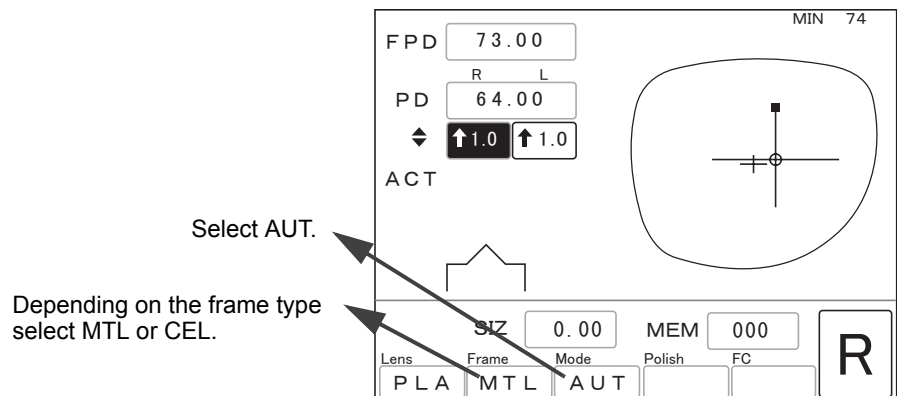
2.7 Beveling

See page 29 for procedures of selecting the processing mode corresponding to the lens type.

2.7.1 Auto processing

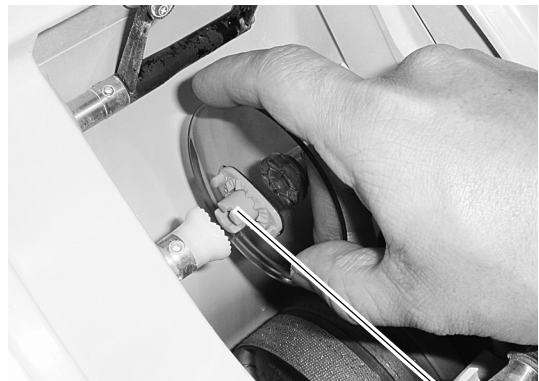
A lens is automatically processed into the computer-calculated beveled edge.

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark



- Confirm that the color of the pliable cup is the same as that of the R/L lamp.
The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the button is pressed.



WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

The feelers come out. The front and rear surfaces of the lens are measured.

2) Roughing

3) Finishing

4) Polishing (only when polishing is selected)

5) Safety beveling (only when safety beveling is selected) (S and SNT models only)

6) Completion of processing



* Polishing cannot be selected depending on the instrument type. See "1.1 Outline of Instrument" (page 1).

* The processing order may differ depending on the lens material.


When the screen changes to the simulation screen in Step 2), the sectional view position line rotates and the bevel sectional view in total circumference is automatically displayed in order.

○ The position to be processed can be changed when roughing glass lenses.


Changing position to be processed prevents the roughing wheel for glass lenses from being worn partly.

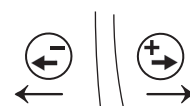
To adjust the position, press the  or  button during roughing.



 button: The position where the lens contacts with the wheel moves to the right.



 button: The position where the lens contacts with the wheel moves to the left.



Roughing wheel for glass lenses






Note


- Be sure to move a glass lenses within the roughing wheel for glass lenses. Failure to do so could damage the other wheels or break the lens.
- The setting of position adjustment is applied to the processed one lens. After processing is completed, the specified amount is cleared and returns to the default.

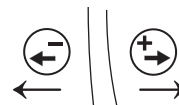
○ The position to be processed can be changed when roughing plastic lenses.

When a high base curve lens or high-power negative lens is off the roughing wheel for plastic lenses, change the position where the lens contact with the wheel.

To adjust the position, press the  or  button during roughing.

 button: The position where the lens contacts with the wheel moves to the right.

 button: The position where the lens contacts with the wheel moves to the left.




Roughing wheel for plastic lenses

 Note

- The setting of position adjustment is applied to the processed one lens. After processing is completed, the specified amount is cleared and returns to the default.

6 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.



WARNING • Confirm that the wheel has come to a complete stop before opening the processing chamber door.

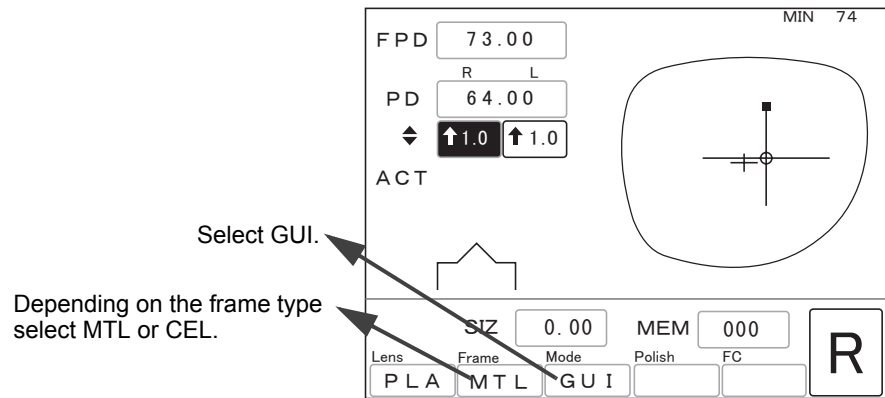
- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel has come to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

2.7.2 Guided processing

This is the mode to enter the value of the bevel curve and position manually.

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark

Note


- Confirm that the color of the pliable cup is the same as that of the R/L lamp.
The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.



WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

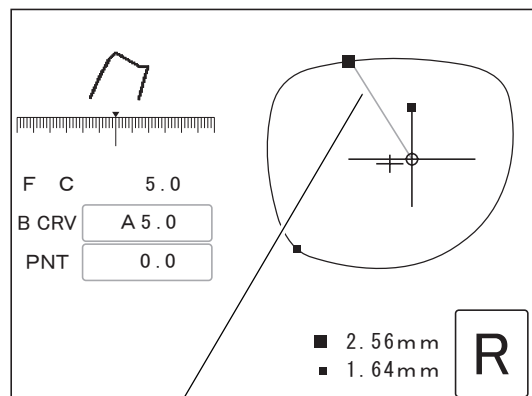
The feelers come out. The front and rear surfaces of the lens are measured.

2) Pause

The LED of the  button blinks.


The screen changes to the simulation screen and the sectional view is displayed.


The bevel sectional view indicated by the sectional view position line on the shape is displayed.





Sectional view position line


6 Check the bevel sectional view in each position using bevel simulation.

Press the  button ⇒ Each press of the button switches the sectional view position line between the edge's thinnest position (small ■) and the edge's thickest position (large ■). When the "TILT Function" parameter is set to Exec on the Parameter exchange mode screen, the sectional view position line also switches to the tilt base position or its diagonally-opposite position.

Press the  button. ⇒ The sectional view position line rotates counterclockwise. Pressing the button again stops the rotation of the sectional view position line.

Press the  button. ⇒ The sectional view position line rotates clockwise. Pressing the button again stops the rotation of the sectional view position line.

Pressing the  button when the simulation screen is displayed changes the screen to the layout screen. The layout conditions can be checked. However, they cannot be changed.



Pressing the  button again returns to the simulation screen.

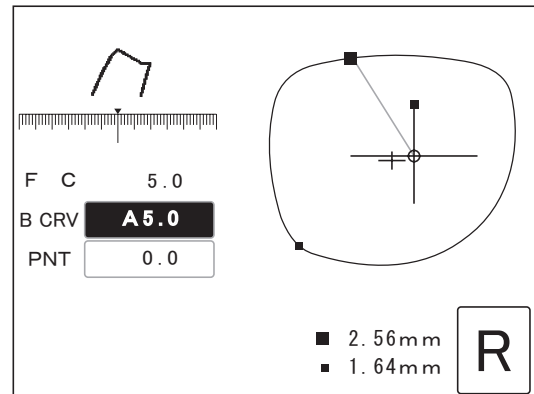
7 Adjust the bevel position.



- (a) To change the bevel position on the thick edge

- 1) Display the bevel sectional view at the edge's thickest position (large ■).

Pressing the  button moves the sectional view position line to the edge's thickest position.


- 2) Move the cursor () to the B CRV numeric field with the  button.



- 3) Change the B CRV value with the  or  button to move the bevel toward the front or rear surface.



Changing the B CRV value moves the bevel based on the edge's thinnest position (the ratio of 5:5 keeps).

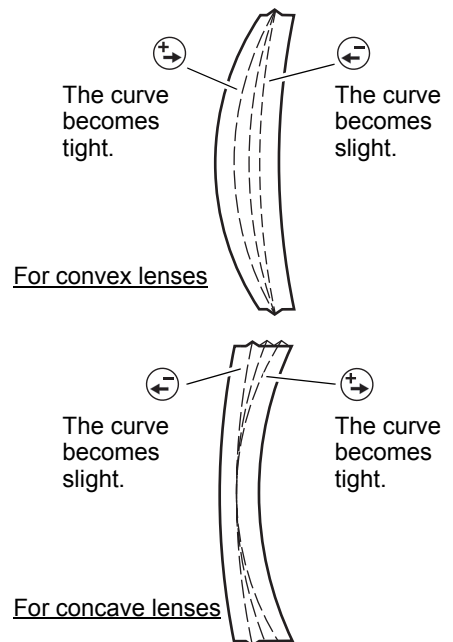
The bevel shift amount becomes maximum at the edge's thickest position. Change the bevel curve confirming the bevel sectional view at the edge's thickest position (large ■).

The front-based curve, rear-based curve, and ratio can be selected with the .

FRNT ⇒ Curve profiled along the front surface of a lens

REAR ⇒ Curve profiled along the rear surface of a lens




4:6 ⇒ Select the desired ratio with the  or  button.





 Note

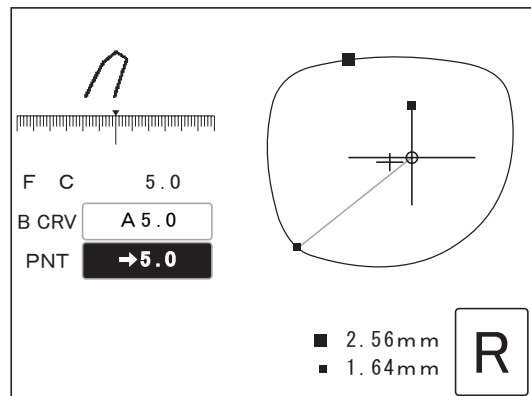
- The B CRV value with A on the top is the same as the computer-calculated value.
 - The B CRV value can be selected only within a range that width of the lens edge allows.
 - Select REAR in the B CRV field for cataract lenses.
- If the bevel is specified by the front-based curve, curve value, or ratio, proper beveling may not be performed.




- (b) To change the position of the whole bevel parallel to itself



1) Turn off the cursor () with the  or  button.


2) Display the bevel sectional view at the edge's thinnest position (large ).


Pressing the  button moves the sectional view position line to the edge's thinnest position.



3) Move the cursor () to the PNT numeric field with the  or  button.

4) Enter the amount to move the bevel toward the front or rear surface with the  or  button. (unit: mm)

 button ⇒ The bevel moves toward the front surface.

 button ⇒ The bevel moves toward the rear surface.

The arrow of ← before the value indicates that the bevel is moved toward the front surface and the arrow of → indicates that the bevel is moved toward the rear surface.

For example) ←0.4 ⇒ The bevel position moves toward the lens front surface by 0.4 mm.




For example) →0.5 ⇒ The bevel position moves toward the lens rear surface by 0.5 mm.

 Note

- In order to avoid the bevel being off the lens edge, change the bevel position confirming the bevel sectional view at the edge's thinnest position.

As distinct from the bevel curve, it is possible to set the bevel tip point which produces a single-sided bevel.

8 Check the bevel sectional view.

1) Turn off the cursor () with the  or  button.

2) Confirm whether the desired bevel is obtained in the same manner as Step 6.

9 Repeat steps 6 to 8 until the desired bevel is obtained.

10 Start processing.

Press the  button.

3) Roughing

4) Finishing


5) Polishing (only when polishing is selected)

6) Safety beveling (only when safety beveling is selected) (S and SNT models only)

7) Completion of processing

- * Polishing cannot be selected depending on the instrument type. See "1.1 Outline of Instrument" (page 1).
- * The processing order may differ depending on the lens material.

11 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.



WARNING • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

2.7.3 EX lens processing

As the surface of an EX lens is multi-tiered, the feelers get caught between the two levels. Therefore, the lens shape cannot be measured in auto processing mode or guided processing mode. Process an EX lens in EX lens processing mode. In this mode, the shape is measured so that the feelers do not come in contact with the difference in levels and rear-based curve beveling is performed.

In a cataract lens with a large protrusion on its front convex surface, use EX lens processing mode when the lens cannot be processed in guided processing mode (rear-based curve) due to a lens measurement error.

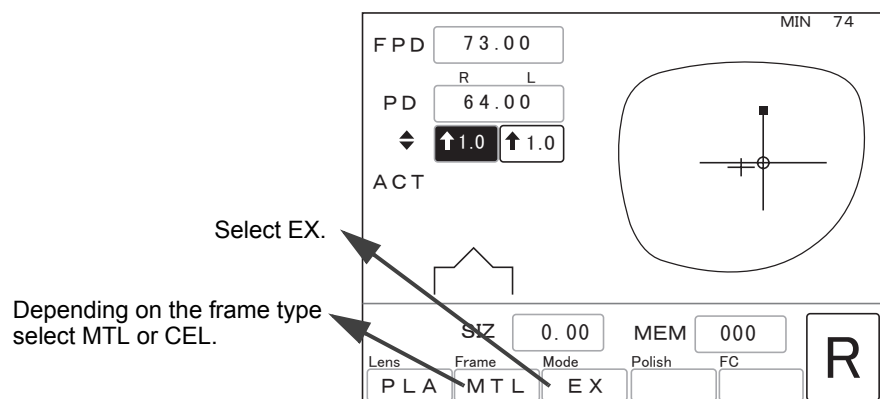


CAUTION • Be sure to process EX lenses in EX lens processing mode.

The feelers may be damaged in auto or guided processing mode.

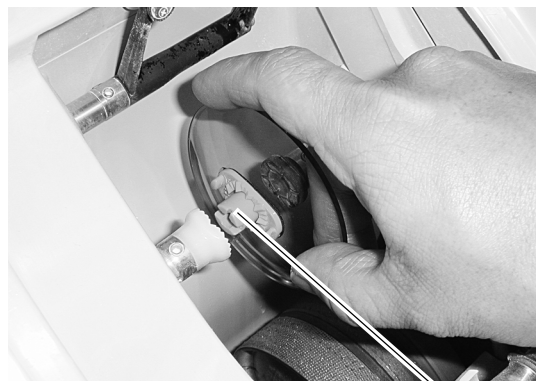
2

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark



- Confirm that the color of the pliable cup is the same as that of the R/L lamp.


The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.

WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.
 Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

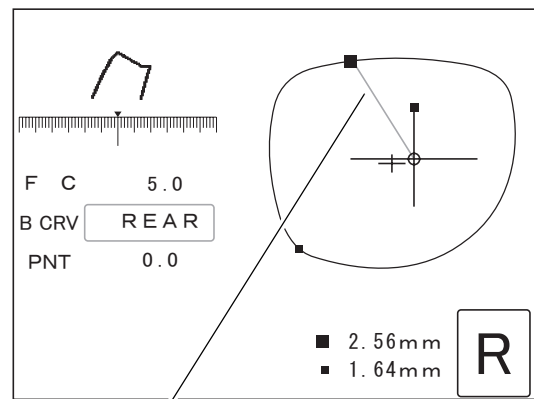
The feelers come out. The front and rear surfaces of the lens are measured.

2) Pause

The LED of the  button blinks.


The screen changes to the simulation screen and the sectional view is displayed.


The bevel sectional view indicated by the sectional view position line on the shape is displayed.




Sectional view position line

6 Check the bevel sectional view in each position using bevel simulation.

Press the  button ⇒ Each press of the button switches the sectional view position line between the edge's thinnest position (small ■) and the edge's thickest position (large ■). When the "TILT Function" parameter is set to Exec on the Parameter exchange mode screen, the sectional view position line also switches to the tilt base position or its diagonally-opposite position.

Press the  button. ⇒ The sectional view position line rotates counterclockwise. Pressing the button again stops the rotation of the sectional view position line.

Press the  button. ⇒ The sectional view position line rotates clockwise. Pressing the button again stops the rotation of the sectional view position line.

To change the bevel position, see Step 7 of 2.7.2 Guided processing.



- Leave the B CRV field as REAR without changing.

If the bevel is specified by the front-based curve, curve value, or ratio, proper beveling may not be performed.

When the "TILT Function" parameter is set to Exec on the Parameter exchange mode screen, the default in the B CRV field is a curve value. Tilt the lens so that the bevel is proper. See "2.9.5 Tilting" (page 73).


7 Start processing.

Press the  button.

- 3) Roughing
- 4) Finishing
- 5) Polishing (only when polishing is selected)
- 6) Safety beveling (only when safety beveling is selected) (S and SNT models only)
- 7) Completion of processing

- * Polishing cannot be selected depending on the instrument type. See "1.1 Outline of Instrument" (page 1).
- * The processing order may differ depending on the lens material.

8 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.



WARNING • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

2.8 Flat Edging

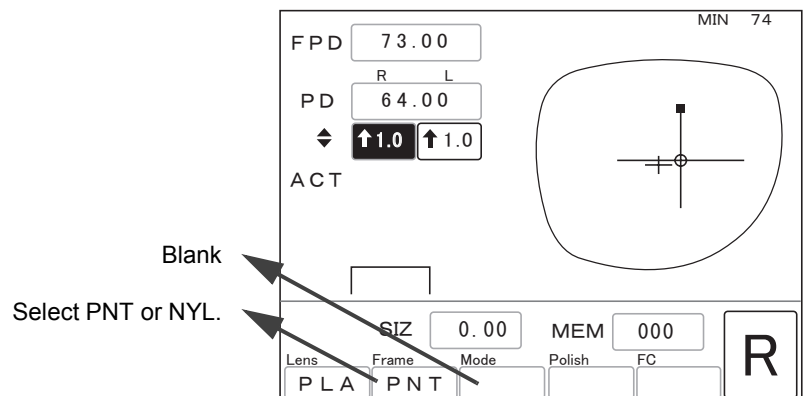
In addition to basic flat edging, grooving for nylon frames can be performed continuously after flat edging. (S and SNT models only)

EX lens flat edging mode for EX lenses is also available for basic flat edging.

Grooving offers auto grooving mode for calculating the groove position and curve using lens measurement data, guided grooving mode for manual entry, and EX lens grooving mode.

2.8.1 Flat edging

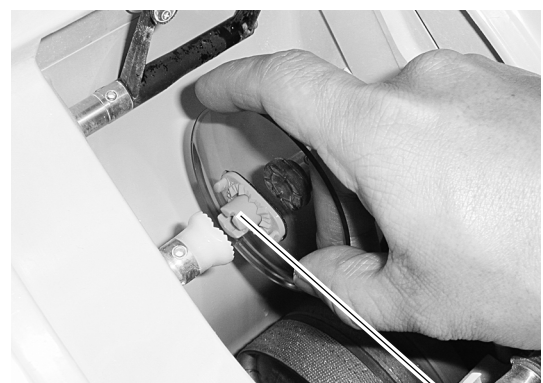
- 1 Check processing mode.



- When PNT is selected, the FPD is corrected by entering the size. When NYL is selected, the FPD is not corrected.

- 2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.




Top mark




- Confirm that the color of the pliable cup is the same as that of the R/L lamp.
The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the  button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

 **CAUTION** • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.

 **WARNING** • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement*¹

The feelers come out. The front and rear surfaces of the lens are measured.

2) Roughing

3) Finishing

4) Polishing (only when polishing is selected)

5) Safety beveling (only when safety beveling is selected) (S and SNT models only)

6) Completion of processing

The screen returns to the layout screen.


* Polishing cannot be selected depending on the instrument type. See “1.1 Outline of Instrument” (page 1).

* The processing order may differ depending on the lens material.

*1. **When the “Measure in flat edge” parameter is set to None on the Parameter exchange mode screen, lens shape is not measured.**

However, when of grooving or safety beveling, the lens shape must be measured regardless of this parameter setting.

6 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.



WARNING • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.



Note

- When polishing a lens which is difficult to process for any reason or whose edge is unusually thick, a part of the edge may remain unpolished. In such cases, retouch the lens without changing the size.

See "2.11.2 Retouching" (page 81).

○ Addition of grooving

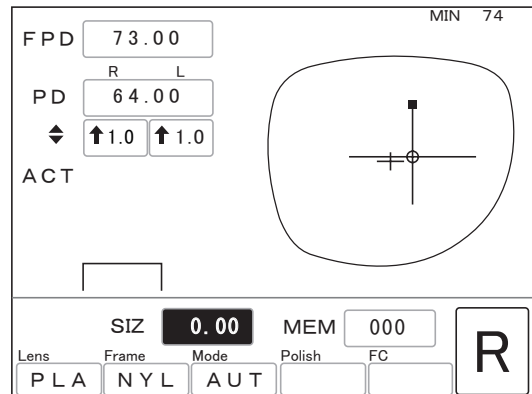
When the “To add safety bevel” parameter is set to Exec on the Parameter exchange mode screen, grooving can be performed additionally after flat edging with Nylon in Frame field. (except for glass lenses)

However, when a cup is removed, the lens side is switched, or other frame data is read, grooving becomes unavailable as with retouching.

- 1) Select AUT or GUI with the Mode button.


- 2) Set a lens to the cup holder.


Securely insert the pliable cup into the cup holder with the top mark facing up.




- 3) Press the  button or  button.

 button ⇒ Grooving is performed.

 button ⇒ Grooving is performed after retouching.

When guided mode is selected in Step 1), the screen changes to the simulation screen and processing pauses. Check the groove sectional view and adjust the groove depth, width or such if necessary. Pressing the  button starts grooving. See “2.8.4 Guided grooving (S and SNT models only)” (page 59).

Note

- When the lens is grooved at first processing, the groove can be retouched in the same manner.
 - When guide mode is selected, all items on the simulation screen can be adjusted for adding the groove, however, any change other than increasing the groove depth and width is impossible for retouching the groove.
- When reducing the size value for Edge by 0.35 or more with the  button, additional grooving and retouching for grooving are unavailable.

2.8.2 EX lens flat edging

This is the mode to measure the lens shape of the front surface and flat edge EX lenses more accurately. (In basic flat edging mode, the shape of EX lenses cannot be measured.)

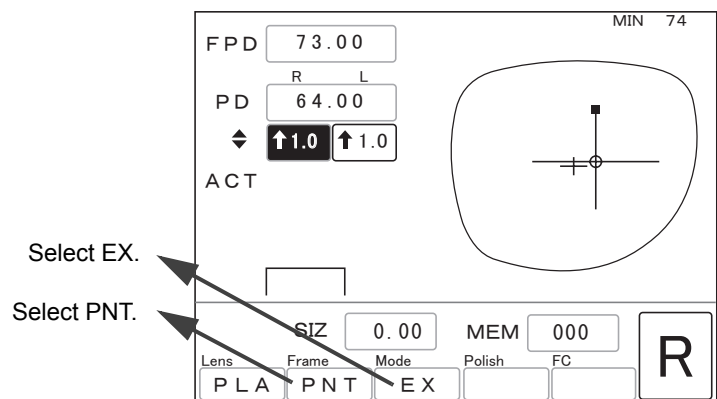
This mode is especially effective when polishing is selected. More accurate polishing becomes available.



CAUTION • Be sure to flat edge EX lenses in EX lens flat edging mode.

The feelers may be damaged when of lens shape measurement in basic flat edging mode.

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark



- Confirm that the color of the pliable cup is the same as that of the R/L lamp.

The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.


3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.



CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.

WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

The feelers come out. The front and rear surfaces of the lens are measured.

2) Roughing

3) Finishing

4) Polishing (only when polishing is selected)

5) Safety beveling (only when safety beveling is selected) (S and SNT models only)

6) Completion of processing

The screen returns to the layout screen.

* Polishing cannot be selected depending on the instrument type. See “1.1 Outline of Instrument” (page 1).

* The processing order may differ depending on the lens material.

6 Take out the processed lens.

1) Open the processing chamber door.

2) Press the button to release the lens. Take out the processed lens of the processing chamber.

WARNING • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

Note

- When polishing a lens which is difficult to process for any reason or whose edge is unusually thick, a part of the edge may remain unpolished. In such cases, retouch the lens without changing the size.

See “2.11.2 Retouching” (page 81).

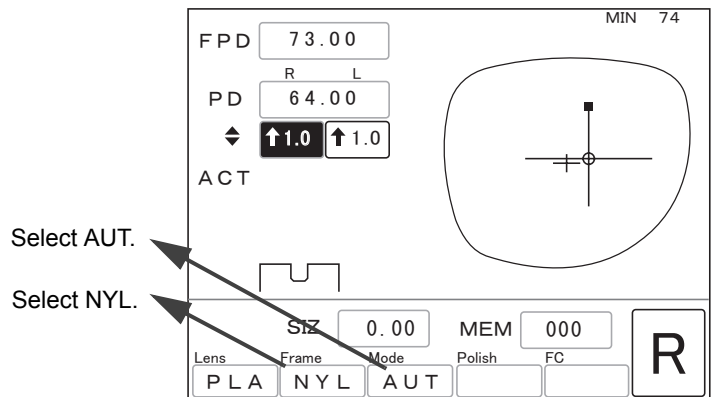
2.8.3 Auto grooving (S and SNT models only)

This is the mode to groove lenses at the computer-calculated position and curve after flat edging.



• Grooving is unavailable for glass lenses.

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark



• Confirm that the color of the pliable cup is the same as that of the R/L lamp.


The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.



WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

The feelers come out. The front and rear surfaces of the lens are measured.

2) Roughing

3) Finishing

4) Polishing (only when polishing is selected)

5) Grooving

6) Safety beveling (only when safety beveling is selected)

7) Completion of processing


The screen returns to the layout screen.


* Polishing cannot be selected depending on the instrument type. See "1.1 Outline of Instrument" (page 1).

* The processing order may differ depending on the lens material.


Note

- When the minimum edge thickness is thinner than the default, a message indicating that the edge thickness is insufficient is displayed and the instrument pauses.

Pressing the  button displays the simulation screen. See Step 5 of 2.8.4 Guided grooving (S and SNT models only) (page 60).

Pressing the  button stops processing. Keep the Mode field in blank to enable processing in flat edging mode.

6 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.



WARNING • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.



Note

- When polishing a lens which is difficult to process for any reason or whose edge is unusually thick, a part of the edge may remain unpolished. In such cases, retouch the lens without changing the size.

See "2.11.2 Retouching" (page 81).

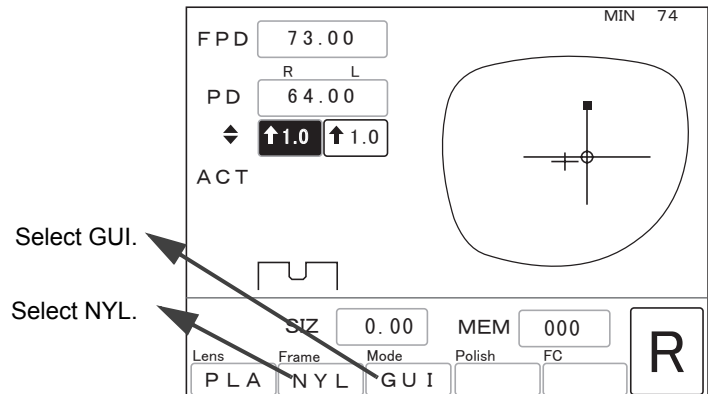
2.8.4 Guided grooving (S and SNT models only)

This is the mode to groove lenses for nylon frames at the position and curve entered manually after flat edging.



- Grooving is unavailable for glass lenses.

1 Check processing mode.



2

2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.



Top mark




- Confirm that the color of the pliable cup is the same as that of the R/L lamp.
The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.



WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

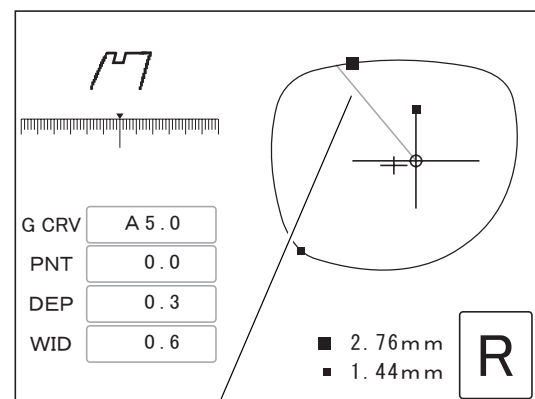
The feelers come out. The front and rear surfaces of the lens are measured.

2) Pause

The LED of the  button blinks.

The screen changes to the simulation screen and the sectional view is displayed.


The groove sectional view indicated by the sectional view position line on the shape is displayed.




Sectional view position line





• When the minimum edge thickness is thinner than the default, grooving is unavailable. In such a case, a message indicating that the edge thickness is insufficient is displayed and the instrument pauses.


Pressing the  button displays the simulation screen. See Step 5.


Pressing the  button stops processing. Keep the Mode field in blank to enable processing in flat edging mode.


6 Check the groove sectional view in each position using groove simulation.

Press the  button. ⇒ Each press of the button switches the sectional view position line between the edge's thinnest position (small ■) and the edge's thickest position (large ■).

Press the  button. ⇒ The sectional view position line rotates counterclockwise. Pressing the button again stops the rotation of the sectional view position line.

Press the  button. ⇒ The sectional view position line rotates clockwise. Pressing the button again stops the rotation of the sectional view position line.

Pressing the  button when the simulation screen is displayed changes the screen to the layout screen. The layout conditions can be checked. However, they cannot be changed.


Pressing the  button again returns to the simulation screen.

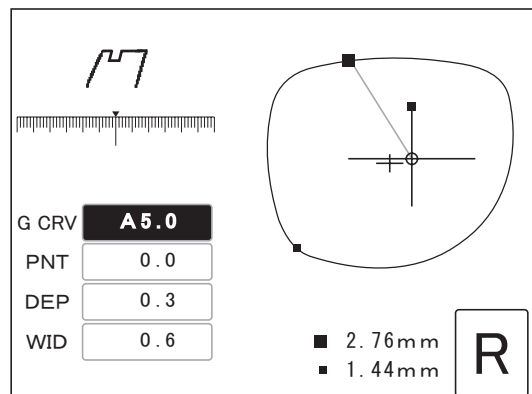
7 Adjust the groove position.



- (a) To change the groove position on the thick edge

- 1) Display the groove sectional view at the edge's thickest position (large ■).

Pressing the  button moves the sectional view position line to the edge's thickest position.


- 2) Move the cursor (■) to the G CRV numeric field with the  button.



- 3) Change the G CRV value with the  or  button to move the groove toward the front or rear surface.



Changing the G CRV value moves the groove based on the edge's thinnest position (the ratio of 5:5 keeps).

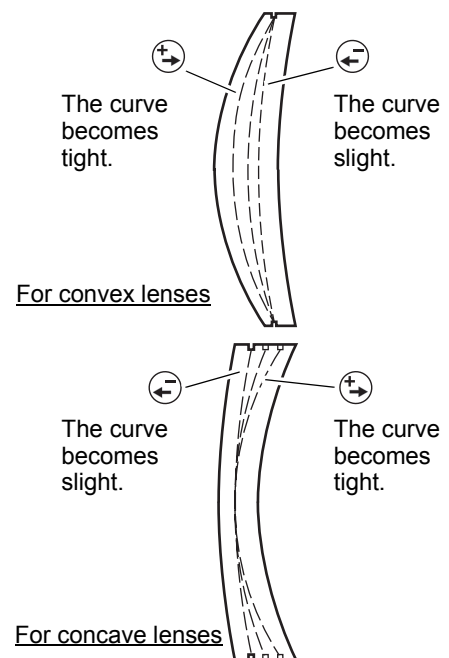
The groove shift amount becomes maximum at the edge's thickest position. Change the groove curve confirming the groove sectional view at the edge's thickest position (large ■).

The front-based curve, rear-based curve, and ratio can be selected with the  button.

FRNT ⇒ Curve profiled along the front surface of a lens

REAR ⇒ Curve profiled along the rear surface of a lens




4:6 ⇒ Select the desired ratio with the  or  button.





 Note

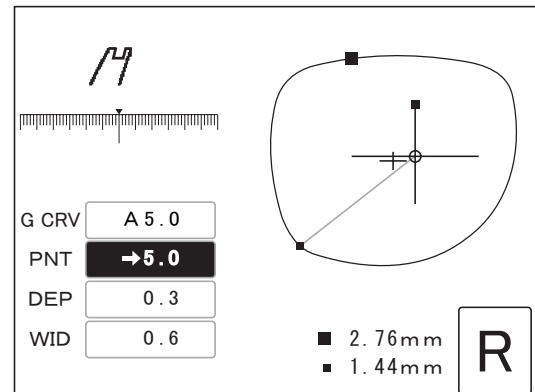
- The G CRV value with A on the top is the same as the computer-calculated value.
- The G CRV value can be selected only within a range that width of the lens edge allows.



●(b) To change the position of the whole groove parallel to itself



1) Turn off the cursor () with the  or  button.


2) Display the groove sectional view at the edge's thinnest position (small ).


Pressing the  button moves the sectional view position line to the edge's thinnest position.



3) Move the cursor () to the PNT numeric field with the  button.

4) Enter the amount to move the groove forward or backward with the  or  button. (unit: mm)

 button ⇒ The groove moves toward the front surface.

 button ⇒ The groove moves toward the rear surface.

The arrow of ← before the value indicates that the groove is moved toward the front surface and the arrow of → indicates that the groove is moved toward the rear surface.

For example) ←0.4 ⇒ The groove position moves toward the lens front surface by 0.4 mm.




For example) →0.5 ⇒ The groove position moves toward the lens rear surface by 0.5 mm.

 Note

- In order to avoid the groove being off the lens edge, change the groove position confirming the groove sectional view at the edge's thinnest position.

As distinct from changing the groove curve, the groove may be off the lens edge.

8 Check the groove sectional view.

1) Turn off the cursor () with the  or  button.

2) Confirm whether the desired groove is obtained in the same manner as Step 6.

9 Repeat Steps 6 to 8 until the desired groove is obtained.

10 Start processing.


Press the  button.


- 3) Roughing
- 4) Finishing
- 5) Polishing (only when polishing is selected)
- 6) Grooving
- 7) Safety beveling (only when safety beveling is selected)
- 8) Completion of processing

The screen returns to the layout screen.

- * Polishing cannot be selected depending on the instrument type. See "1.1 Outline of Instrument" (page 1).
- * The processing order may differ depending on the lens material.

11 Take out the processed lens.

- 1) Open the processing chamber door.
- 2) Press the  button to release the lens. Take out the processed lens of the processing chamber.

 **WARNING** • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

- Confirm that the wheel comes to a complete stop before pressing the  button.

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

 Note

- When polishing a lens which is difficult to process for any reason or whose edge is unusually thick, a part of the edge may remain unpolished. In such cases, retouch the lens without changing the size.
See "2.11.2 Retouching" (page 81).

2.8.5 EX lens grooving (S and SNT models only)

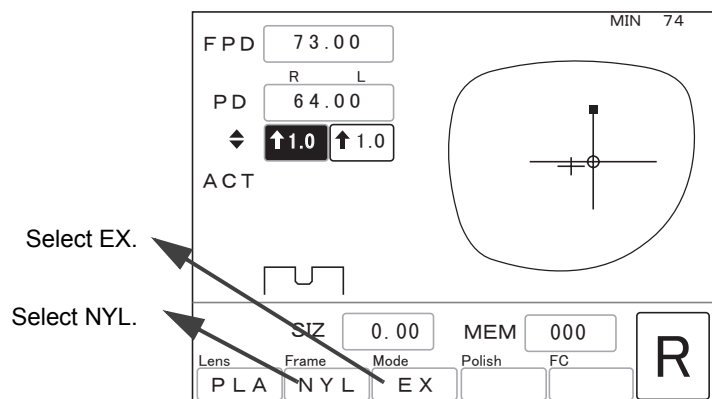
This is the mode to flat edge EX lenses and groove them for nylon frames.
In this mode, grooving which has the curve profiled along the rear surface is performed.

CAUTION • Be sure to groove EX lenses in EX lens grooving mode.
The feelers may be damaged when of lens shape measurement in auto grooving mode or guided grooving mode.



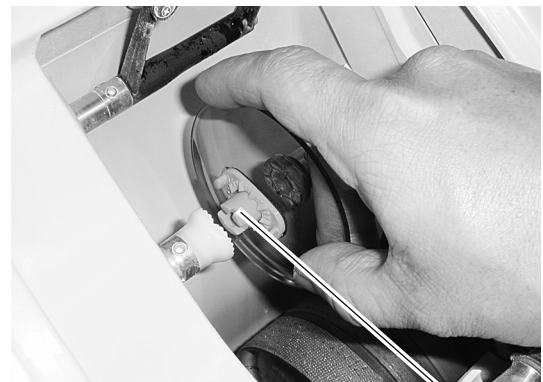
• Grooving is unavailable for glass lenses.

1 Check processing mode.



2 Set a lens to the cup holder.

Securely insert the pliable cup into the cup holder with the top mark facing up.




• Confirm that the color of the pliable cup is the same as that of the R/L lamp.
The green pliable cup is used for the right-eye lens and the red one is used for the left-eye lens. If not, the right and left lenses may be confused.

3 Press the button to chuck the lens.

The lens chuck presses against the lens in the cup holder to secure it.

CAUTION • Be careful not to catch fingers with the lens chuck.

4 Close the processing chamber door.

When the processing chamber door is open, processing cannot start even though the  button is pressed.

WARNING • Never open the processing chamber door during lens processing.

The instrument does not stop even when the processing chamber door is opened during processing.

Spray containing processing waste may cause eye damage.

5 Start processing.

Press the  button.

1) Lens shape measurement

The feelers come out. The front and rear surfaces of the lens are measured.


2) Pause


The LED of the  button blinks.

The screen changes to the simulation screen and the sectional view is displayed.


Note


- When the minimum edge thickness is thinner than the default, grooving is unavailable. In such a case, a message indicating that the edge thickness is insufficient is displayed and the instrument pauses.


Pressing the  button displays the simulation screen. See Step 5 of 2.8.4 Guided grooving (S and SNT models only) (page 60).

Pressing the  button stops processing. Keep the Mode field in blank to enable processing in flat edging mode.

6 Check the groove sectional view in each position using groove simulation.

Press the  button ⇒ Each press of the button switches the sectional view position line between the edge's thinnest position (small ■) and the edge's thickest position (large ■).

Press the  button. ⇒ The sectional view position line rotates counterclockwise. Pressing the button again stops the rotation of the sectional view position line.

Press the  button. ⇒ The sectional view position line rotates clockwise. Pressing the button again stops the rotation of the sectional view position line.

To change the groove position, see Steps 7 and later of 2.8.4 Guided grooving (S and SNT models only).

Note

- Leave the G CRV field as REAR without changing.

If the groove is specified by the front-based curve, curve value, or ratio, proper grooving may not be performed.

7 Start processing.

Press the  button.

 **CAUTION** • After processing, the processing chamber door opens outward automatically. Be sure to keep face or hands clear.

3) Roughing

4) Finishing

5) Polishing (only when polishing is selected)

6) Grooving

7) Safety beveling (only when safety beveling is selected)

8) Completion of processing


The screen returns to the layout screen.


* Polishing cannot be selected depending on the instrument type. See “1.1 Outline of Instrument” (page 1).

* The processing order may differ depending on the lens material.

8 Take out the processed lens.

1) Open the processing chamber door.

2) Press the  button to release the lens. Take out the processed lens of the processing chamber.

 **WARNING** • Confirm that the wheel comes to a complete stop before opening the processing chamber door.

• **Confirm that the wheel comes to a complete stop before pressing the  button.**

If the lens is unlocked before the wheel comes to a complete stop, the released lens may come into contact with the rotating wheel and the lens may break or shatter resulting in injury.

 **Note**

• When polishing a lens which is difficult to process for any reason or whose edge is unusually thick, a part of the edge may remain unpolished. In such cases, retouch the lens without changing the size.

See “2.11.2 Retouching” (page 81).

2.9 Other Processing

2.9.1 Processing for frame changing

This function is used to mount eyeglass lenses in use into other frames.


In frame changing mode, a lens shape can be compared with a frame shape to confirm whether the lens size is sufficient or not. However, frame changing mode is unavailable in the SNT and LNT models. See “○ Simple frame changing mode” (page 69).



- Before processing, be sure to confirm whether a lens size is sufficient for processing.

In frame changing mode, a bevel tip may be edged as the lens shape is measured 1.5 mm inside from the actual one.

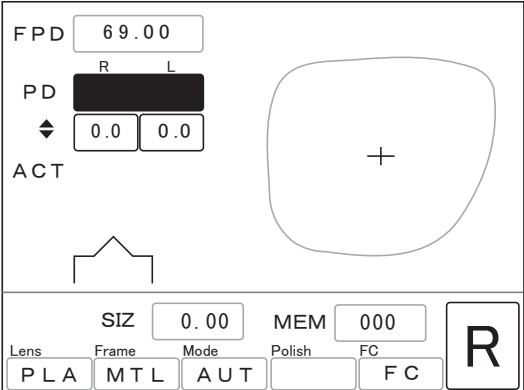
1 Trace new frames.

2 Press the  button to call up the trace data.

The traced frame shapes are displayed on the screen.


3 Press the FC button to go into frame changing mode.

The indication in the FC field changes to FC.



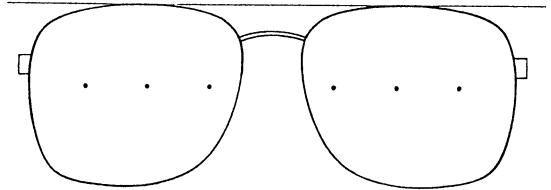

- Select ACT as layout mode.

Selecting PAS or BF mode goes into simple frame changing mode (page 69). Shapes are not overlaid.

- The  button does not function under frame changing mode.
- Soft processing can be selected in frame changing mode only when the lens material is Glass. See “2.9.4 Soft processing” (page 72).

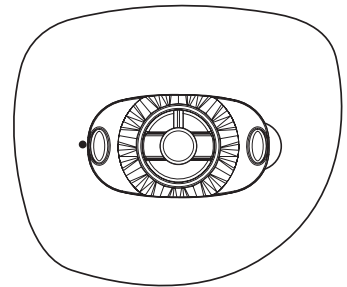
4 Block a lens with a pliable cup.

- 1) Mark the lens at the optical center and points in the horizontal direction with a lensmeter before removing lenses from frames.



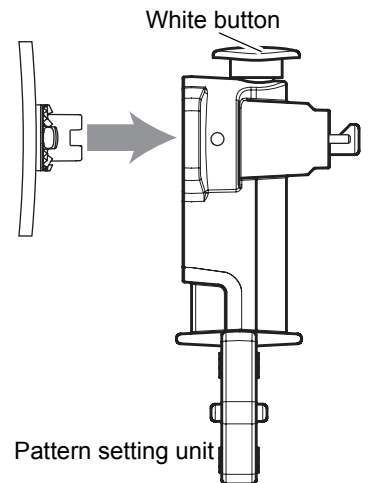
- 2) Remove the lenses from the frames.

- 3) Block the optical center on the convex surface of the lens with a pliable cup using a centering device.



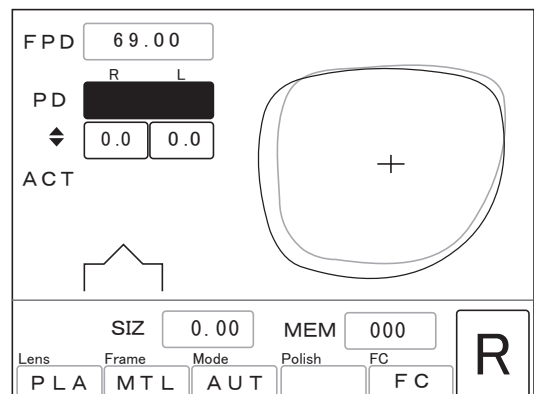
5 Set the lens in the pattern setting unit while pressing the white button.

Align the top mark on the pliable cup with the direction of the white button.



6 Start tracing in the same manner as Steps 2 to 4 of “2.4.2 Pattern tracing” (page 23).

After tracing is completed, the frame shape (light indication) and lens shape (dark line) are automatically overlaid on the screen.

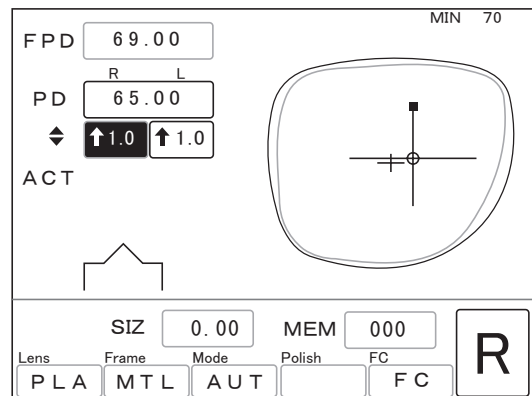


7 Set processing conditions and enter layout data (PD, ◆).

See “2.5 Setting Processing Conditions and Entering Layout Data” (page 27).

8 Confirm that the lens size is sufficient.*1

Confirm that the frame shape (light indication) is completely within the lens shape (dark line).



9 Remove the lens blocked with the pliable cup from the pattern setting unit.

10 Process the lens.

When the lens is judged to be insufficient for processing during lens shape measurement, processing cannot continue.

11 Press the R/L button to switch the side of the lens to be processed. Repeat Steps 4 to 10 to process the other side.

12 When both lenses are processed, press the FC button to exit from frame changing mode.

○ Simple frame changing mode

When the lens size is sufficient for frame changing, the lens can be also processed in frame changing mode without tracing.


In that case, skip Steps 5, 6, 8, and 9 above.

In addition, the Ice 1000 or ICE-9000 can block a lens to be changed to fit a new frame by attaching the cup to the new frame center. When pressing the FC button to go into frame changing mode, simple frame changing mode is automatically activated. The lens and frame shapes do not need to be overlaid in the Le 1000 as the Ice 1000 or ICE-9000 has already confirmed that the lens size is sufficient.

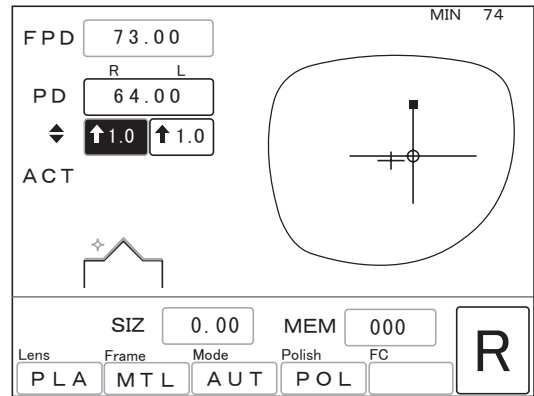
*1. When the lens size is insufficient, change the value in the PD or ◆ field to move the frame shape within the lens shape. However, the prescription may become altered.

2.9.2 Polishing

This is the mode to polish a lens edge after processing. It saves the effort of buffing to the minimum.

Press the Polish button and select POL before processing starts by pressing the  button.

The indication in the Polish field changes to POL.






 Note

- Polishing is unavailable for glass lenses.
- Polishing is unavailable in the PC type.
- Polishing is unavailable during beveling in the PL-4 type.

2.9.3 Safety beveling (S and SNT models only)

Lenses can be safety-beveled before processing is completed.

Press the  button to activate safety beveling before processing starts by pressing the  button.

The LED of the  button lights up and the image of processing shape for current settings on the layout screen changes to the safety-beveled one.

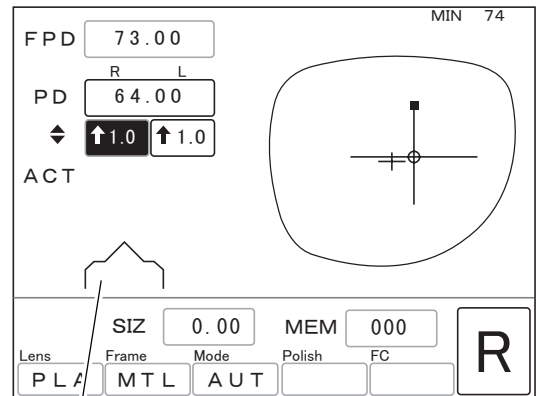


Image of processing shape for current settings



 Note

- For the safety bevel amount and the setting whether to safety bevel the both surface or only rear surface in beveling, see “3.14.1 Setting safety beveling mode and amount” (page 129).

○ Addition of safety beveling

When the “To add safety bevel” parameter is set to Exec on the Parameter exchange mode screen, lenses can be safety-beveled additionally.



However, when a pliable cup is removed or other frame data is read, grooving becomes unavailable as with retouching.

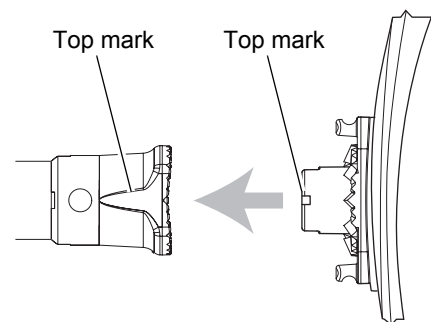
- 1) Press the  button to activate safety beveling.
The LED of the  button lights up.


- 2) Set a lens to the cup holder.


Set the pliable cup to the cup holder aligning the top mark on the pliable cup with that on the cup holder.

Press the  button to chuck the lens.

- 3) Close the processing chamber door and press the  or  button.



 button ⇒ Safety beveling is performed.

 button ⇒ Safety beveling is performed after retouching.

 Note

- When the lens is safety-beveled at first processing, the safety bevel can be retouched in the same manner.
- When reducing the size value, safety beveling is unavailable.

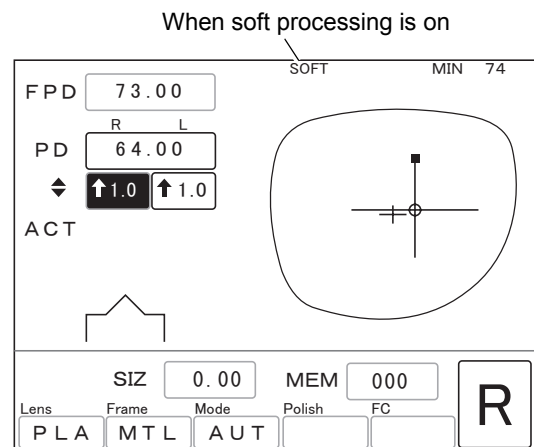
2.9.4 Soft processing

Soft processing is the method to control the roughing process more precisely.

The processing time may increase slightly but the processing noise is reduced as is the axis shift during processing.

For processing lenses with a slippery coating, activate soft processing to reduce the axis shift due to slippage.

In addition, should a glass lens break during processing, soft processing can be selected to protect the lens from breaking again.



- Soft processing can be selected in frame changing mode only when the lens material is Glass.


○ Activating soft processing mode at all times

Set the “Grinding mode” parameter on the Parameter exchange mode screen to Soft. See “2.15 Setting Parameters” (page 86).

○ Selecting normal or soft processing on the layout screen

Regardless of the setting on the Parameter exchange mode screen, extended pressing of the Lens button makes a beep and switches soft processing between on and off.

When soft processing is on, SOFT is displayed at the top of the screen.

Press of the  button can also switch soft processing on and off in the L and LNT models.

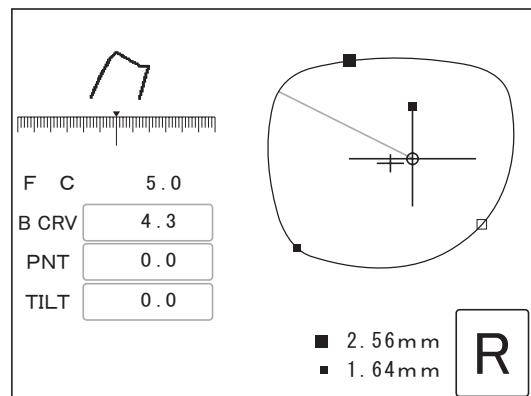
2.9.5 Tilting

The appearance of lens with an extreme difference in width between the edge's thickest position and thinnest position may be impaired when mounted. However, this appearance will improve if the bevel is tilted. To use the tilt function, set the "TILT Function" parameter on the Parameter exchange mode screen to Exec.



- 1 Select processing mode between Guide and EX, chuck a lens, and measure the lens shape.

After lens shape measurement, the screen changes to the simulation screen and processing pauses.

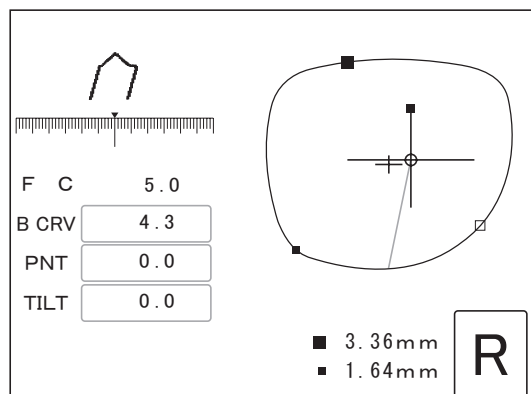
Steps 1 to 4 of "2.7.2 Guided processing" (see page 42)







- 2 Adjust the bevel position.



- 1) Move the sectional view position line to the tilt base position (edge position where a bevel is not to be moved at all or the position diagonally opposite position to be the edge position where a bevel is to be moved the most) with the  or  button. The sectional view of the position is displayed.

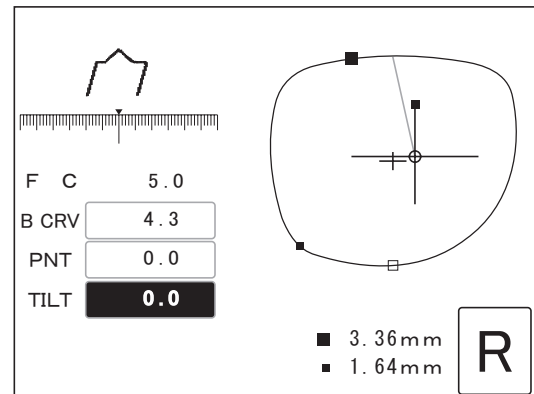
The most suitable position for tilt base position is the edge's thinnest position, or a diagonally-opposite position (through the frame center) where a bevel is moved the most.








- 2) Move the cursor () to the TILT numeric field with the  button and press the  button.

The tilt base position mark () moves to the end of the sectional view position line. After that, the line automatically jumps to the diagonally-opposite position.




When a value has been already entered in the TILT field, pressing the  button resets the field to "0.0". Press the  button again to set a value for the tilt base position in the TILT field.



- 3) Move the cursor () to the B CRV numeric field with the  or  button.
 4) Set the desired B CRV value with the  or  button.

An "A" attached to the B CRV values indicates the bevel position is calculated from Ratio. The absence of an "A" indicates the bevel position is calculated from the spherical curve of the lens.




With the tilt function, the bevel position is adjusted according to the spherical curve value of the lens as a base. For this reason, when a ratio curve value with A is set, the set tilt value may differ from the actual till amount of the bevel. As the difference between the ratio curve and spherical curve becomes greater, the tilt amount will substantially increase.

- 5) As necessary, move the cursor () to the PNT numeric field and set the bevel position with the  or  button.

Negative value ⇒ The whole bevel moves toward the front surface parallel to itself.

Positive value ⇒ The whole bevel moves toward the rear surface parallel to itself.

The arrow of ← before the value indicates that the bevel is moved toward the front surface and the arrow of → indicates that the bevel is moved toward the rear surface.

- 6) Move the cursor () to the TILT numeric field and set the tilt amount of the bevel with the  or  button.

The bevel tilt amount is the bevel shift amount in the position diagonally opposite to the tilt base position.


Negative value ⇒ The bevel moves toward the front surface.

Positive value ⇒ The bevel moves toward the rear surface.

- 7) Check the whole bevel position.

Turn off the cursor () with the  button and move the sectional view position with the  or  button to check the bevel position.

- 8) Repeat Steps 3 to 7 until the desired bevel position is obtained.

To cancel the bevel setting values and stop processing, press the  button. The settings on the guided processing screen are canceled and the screen returns to the layout screen.

3 Start processing.

Press the  button to start processing.

After roughing and finishing, processing finishes.

The screen returns to the layout screen.

4 Press the button to release the lens. Take out the processed lens of the processing chamber.

5 When processing the other lens subsequently by switching R or L, the former settings values are displayed as defaults.

When on lens is processed with the tilt function, the guided processing screen is automatically displayed after the other lens is processed by switching R or L.

The former values such as the tilt base position, tilt amount, curve, and position are displayed as defaults.

● An example of tilting

The following are the procedures of processing EX lenses with the tilt function.

An EX lens has a far-vision part on the upper half and the near-vision part on the lower half as shown to the right, with a wide difference between the top edge width and the bottom. Such a difference in level causes the lens surface to be not attractive when the lens is beveled with a specified ratio. Without the tilt function, an EX lens is normally processed with a rear-based curve. However, as the lens edge on the upper half is thick, the lens protrudes from the frame excessively. When processing an EX lens with the tilt function, the initial bevel curve value is not a rear-based curve. The bevel is calculated from the spherical curve which is the same as the auto-curve value. Then the Le 1000 goes into guide processing mode automatically.

The figure to the right is the side view of tilting an EX lens. As illustrated, the bevel on the thick upper part of the lens is moved toward the front surface of the lens while taking care that the bevel remains just within the rear surface of the edge's thinnest part.

The following are the procedures for processing the EX lens with an attractive appearance by adjusting the bevel position on the upper part to the front surface with the tilt function.

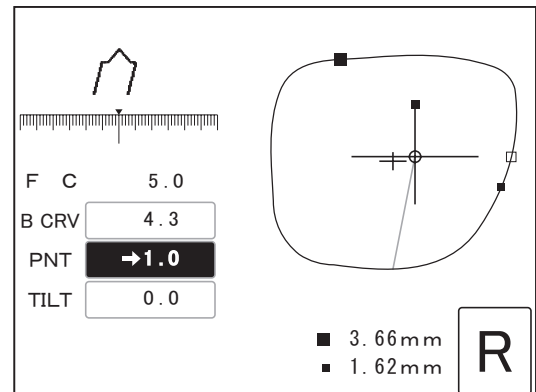


Figure of an EX lens

1) Setting tilt base position

Align the sectional view position line to the position adjacent to the point straight down from the frame center as shown to the right. Then move the bevel toward the rear surface as far as possible. This is to tilt the bevel on the upper part as much as possible. However, if the lens edge is thick enough, leave the bevel around the middle of the lens.

After that, press the  button to set the position as a tilt base position.



2) Entering tilt amount

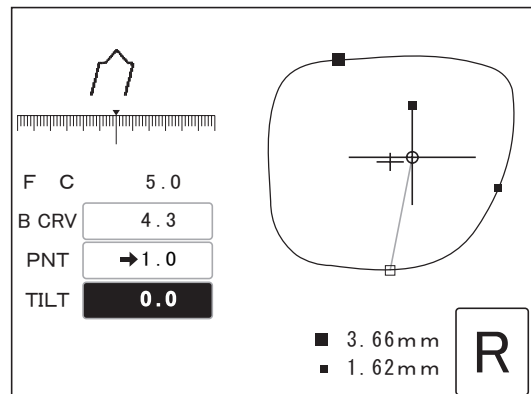
The bevel position has been moved toward the rear in Step 1). Move the bevel toward the front of the thick upper part by entering a minus value as the tilt amount.

While doing so, always observe the bevel at the boundary between the far-vision and near-vision parts. In most cases, the edge's thinnest position is at the boundary. Adjust the tilt amount so that one side of the bevel remains just within the lens edge.

Explanations about adjustment in each position are as follows:

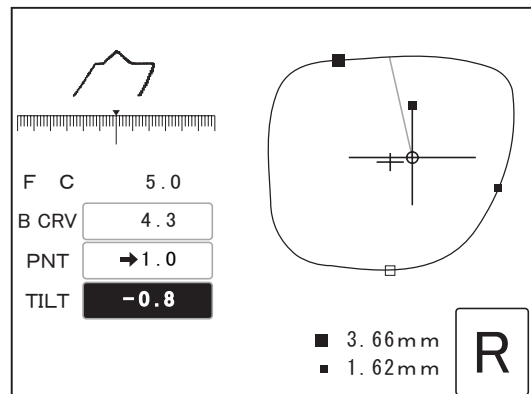
To restart the operation from the beginning, reset the TILT and PNT fields to 0.0 and set the B CRV field to auto.

- Position adjacent to the point straight down from the frame center (tilt base position)
 - When the edge is thin, change the value to move the bevel backward as much as possible.
 - When the edge is relatively thick, move the bevel backward by about 1/3.
 - Keep the tilt amount unchanged.

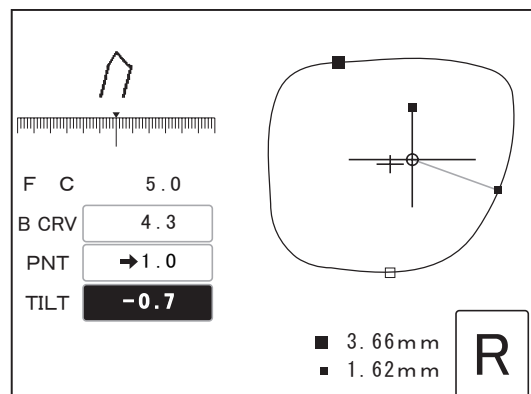


2

- Upper position (diagonally-opposite position to the tilt base position)
 - Move the bevel forward as much as possible while checking the bevel status.
 - Increase the tilt amount to the negative direction (toward the front surface).



- Edge's thinnest position (an the boundary between the far-vision and near-vision parts)
 - Move the bevel tip on the upper part toward the front so that the bevel tip in the edge's thinnest position remains at the lens edge.
 - Set the tilt amount so that bevel tip barely remains within the lens edge.



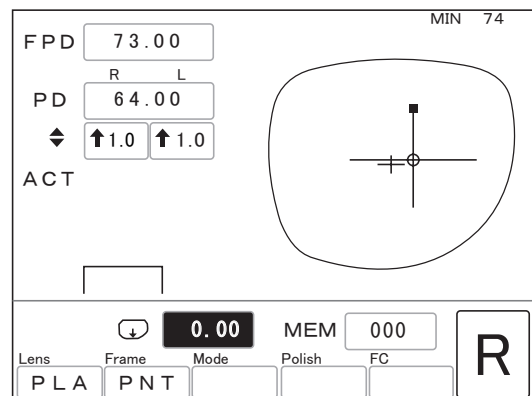
2.10 Shape Change Function

The shape change function changes sections of lens shapes based on existing lens data. This function is available for two-point or nylon frames.

1 With the lens shape to be changed displayed on the layout screen, move the cursor (■) to the SIZ numeric field with the (↑) or (↓) button.

2 Press the (ENT/OK) button to make the length below the frame center change.

The characters of SIZ changes to (↓).

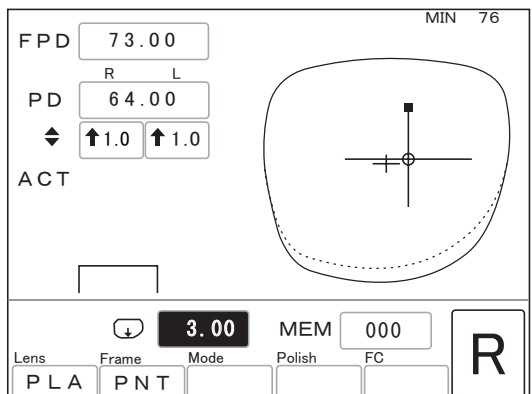


3 Change the length below the frame center with the (←) or (→) button.

The unit of the value is mm.

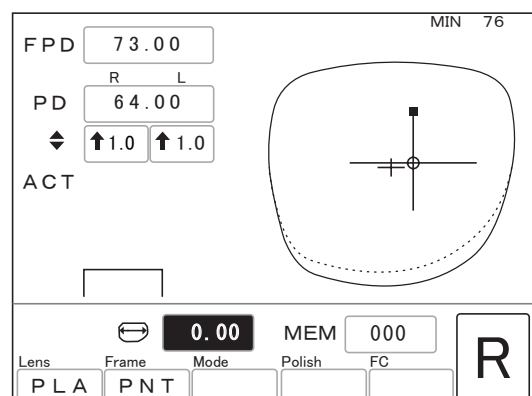
For example)When of 3.00, the shape becomes larger downward by 3 mm.



The original shape is displayed in dotted lines and the changed shape is displayed in solid lines.



4 Press the (ENT/OK) button to make the shape width change.

(↓) becomes (↔).

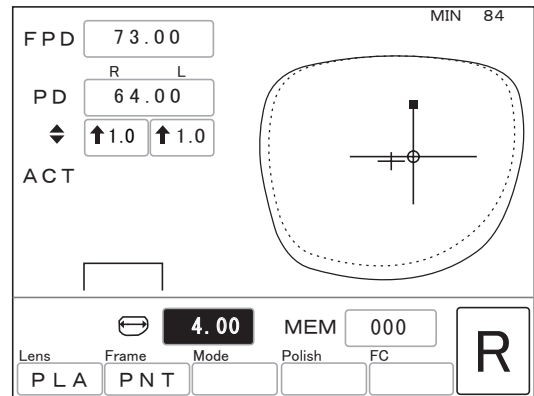


5 Change the width with the  or  button.


The unit of the value is mm.


For example)When of 4.00, the width becomes larger by 4 mm.


The original shape is displayed in dotted lines and the changed shape is displayed in solid lines.

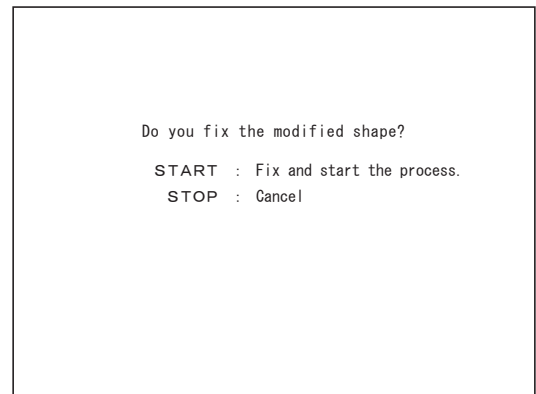


When the shape data is stored in the internal memory at this time, the changed shape can be stored. See “2.17 Storing and Calling Up Shape Data (Except for S and L Models)” (page 91).

6 After setting processing conditions and entering layout data, set the lens and press the  button. The screen to the right is displayed.

7 Press the  button to start processing with the changed shape.

Pressing the  button cancels processing.



2.11 Checking Lens Size

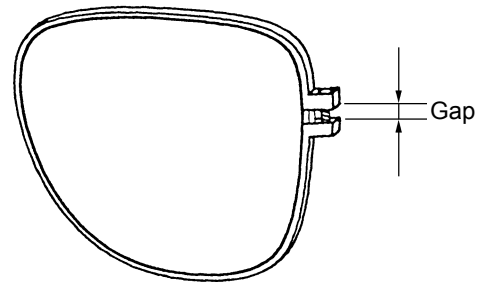
A lens size is checked after processing. When the lens is too large, retouch it to correct the size.

2.11.1 Checking lens size

Fit the lens with the pliable cup into the frame and measure the gap at the rim joint.



- Do not remove the pliable cup. If the pliable cup is removed, retouching becomes unavailable.



2

2.11.2 Retouching

When a lens is too large, retouch it.

1 Change the SIZ value with the button.

Any items other than SIZ cannot be changed.

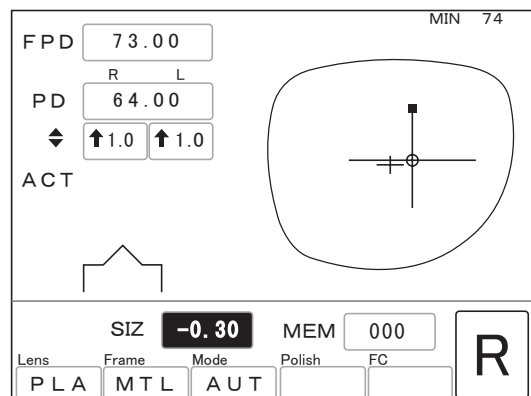
Guide of size adjustment:

Subtract one-third of the gap at the rim joint from the SIZ value.

For example) When the gap is 1 mm

$$\frac{1}{3} \times 1 \text{ (mm)} = \text{approx. } 0.3 \text{ (mm)}$$

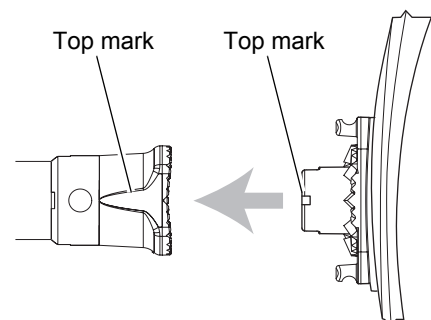
Decrease the SIZ value by 0.3.



2 Set a lens to the cup holder.

Set the pliable cup to the cup holder aligning the top mark on the pliable cup with that on the cup holder.

Press the button to chuck the lens.



3 Start retouching.

Close the processing chamber door and press the button.

4 After processing is completed, check the lens size. When the size is still large, retouch the lens again.



- When reducing the lens size by 0.5 mm or more during retouching, there may be a loss of lens height.
 In trial processing, process the lens with an excess of 3 mm. In actual processing, do not retouch the lens but rather rough it as follows:
 - 1) Change the Size value.
 - 2) Press the R/L button twice.
 - 3) Press the button to start processing.
- However, when a cup is removed or other frame data is read, retouching becomes unavailable.

○ Retouching of grooving

Retouching of grooving is possible in the same manner as “○ Addition of grooving” (page 53).
 When reducing the SIZ value by 0.35 or more, retouching of grooving is impossible.
 When guide mode is selected, any change other than increasing the groove depth and width is impossible on the simulation screen.

○ Retouching of safety beveling

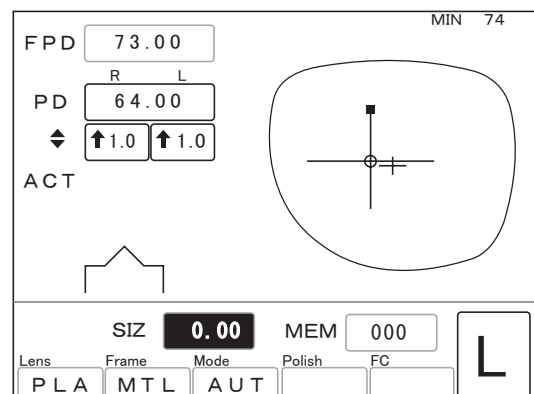
Retouching of safety beveling is possible in the same manner as “○ Addition of safety beveling” (page 71).
 When reducing the size value, retouching of safety beveling is impossible.

2.12 Processing the Other Side Lens

1 Switch the side of the lens to be processed.

Press the R/L button.

2 Process the other side lens in the same manner.



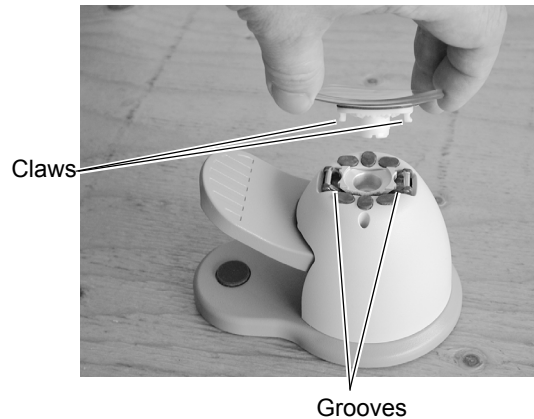
2.13 Removing Lens Cup

2.13.1 Removing pliable cup

Use the provided pliable cup remover to remove the pliable cup from a lens.

- 1** Set a lens with the pliable cup on the pliable cup remover.

Fit the claws on the both sides of the pliable cup into the grooves on the top of the remover.



- 2** Press the lever so that the pliable cup is removed downward.

The pliable cup may not be removed even if the lever is lowered to the limit depending on the lens curve or coating. In such a case, remove the pliable cup using your fingers with the lever lowered.



 **Note**

- Pliable cups are consumables. Replace the pliable cup with a new one when it becomes hard to remove the double-coated adhesive tape from the cup.
- Lightly wipe processing waste or moisture off the lens before setting the lens on the pliable cup remover.

Processing waste or moisture getting into the pliable cup remover may result in failure.

2.13.2 Removing mini cup (for optional mini cup set)

Use the mini cup remover to remove the mini cup from a lens.

* The mini cup and mini cup remover are included in the optional mini cup set.



CAUTION • Always hold the lens with a soft cloth.

Hands may be injured by the lens edges when holding the lens directly.

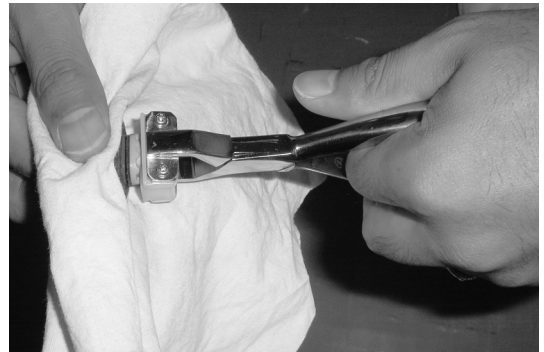
- 1** Set a lens with the mini cup on the mini cup remover.

Insert the mini cup into the groove of the mini cup remover so that the part with an indentation is seen.



Grooves Mini cup remover

- 2** Close the mini cup remover with the handles and grip it.



- 3** Gently twist (rotate) the mini cup remover to remove the mini cup.





Note

- Do not pry the mini cup remover horizontally or vertically to remove the mini cup. Doing so could cause damage to the coated lens surface.

6 : Initial value of PD: ±□.□□




Factory setting: 62.0 [mm]

Sets the default value of the PD.

When the  or  button is first pressed to enter the PD, the value already set is displayed.

7 : Layout preset: ±□.□□

Factory setting: 2.0 [mm]

Sets the default value of the optical center height. Select the height based on the frame center. This value is automatically entered in the  (or PD , BT ) field when entering layout conditions. For eye point layout, the value is not entered automatically.

8 : Measure in flat edge: None, Exec

Factory setting: Exec

Sets whether or not to measure the lens shape during flat edging.

When Exec is selected, the lens shape (front surface only) is measured before roughing. It allows the lens size to be checked as to whether or not it is sufficient.

When None is selected, flat edging is available without measuring the lens shape. However, regardless of this parameter setting, the lens shape is measured when the "To add safety bevel" parameter is set to Exec or the lens is safety-beveled or grooved.

9 : Grind by mirror image: R, L

Factory setting: R

In both-eye tracing, when one side of the frame is traced, the trace data is mirrored and becomes that of the other side. This parameter decides which is the reference side (right or left).

However, the lens size of both sides is actually traced and that trace data is used.

10 : Ext. interface: None, STD., RS232, LAN, ExLAN, MGNET, BK/LE, NAVIS, VCA-A, VCA-B

Factory setting: NAVIS

Sets whether or not to communicate with an external device and the communication format.

The memory function is available only when this parameter is set to None.

STD.: NIDEK standard format when connecting to a NIDEK tracer (LT-200, LT-700, LT-800, LT-900)

RS232: RS-232C standard format

LAN: LAN format

ExLAN: Extended specifications of the LAN format

MGNET: Format for MEGANET terminals

BK/LE: Communication format when connecting to a NIDEK intelligent blocker (ICE-2000, ICE-9000, or ICE mini) on a one-to-one basis

NAVIS: Format for NAVIS-EC terminals

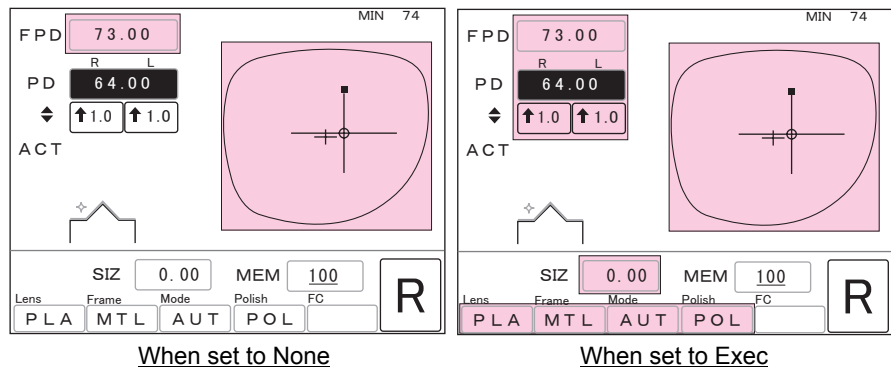
VCA-A: VCA format

VCA-B: VCA format for when the circumference sent by VCA (OMA) communication is not used but rather recalculation of the 3-D lens circumference by the frame curve is used.

11 : Layout memory: None, Exec

Factory setting: Exec

Sets whether or not to call up the layout data with the shape data when calling up data with the memory function. The items whose data can be called up in each setting are indicated with .



12 : Bar Code memory: None, Exec

Factory setting: None

Sets whether or not to call up data with the optional barcode scanner in the memory function.

Using the barcode scanner, the data of 500 frames at maximum can be stored.

13 : Mini-cup check: None, Exec

Factory setting: None

Set the parameter to Exec when using the optional mini cup set.

With the Exec setting, when processing a lens for frames of short height, the “CAN NOT GRIND !! Please Change Layout.” message is displayed and processing pauses.

14 : BF ChuckLayout Side: ±□□mm
(out with a negative value)

Factory setting: -5 [mm]

15 : BF ChuckLayout Height: ±□□mm

Factory setting: 5 [mm]

Sets the lens layout for blocking bifocal lenses. Set the value shifted from the top line center of the segment when blocking bifocal lenses.

Do not change the factory settings (5 mm in and 5 mm up) when the NIDEK centering device CE-9 is used.

16 : TILT Function: None, Exec

Factory setting: None

Sets whether or not to use the tilt function during guided beveling.

The appearance of lens with an extreme difference in width between the edge's thickest position and thinnest position may be impaired when mounted. However, this appearance will improve if the bevel is tilted.

17 : Grinding mode: STD, Soft

Factory setting: STD

Sets whether or not to enable soft processing as the default. See “2.9.4 Soft processing” (page 72).

For Soft setting, the Le 1000 automatically goes into soft processing mode.

The processing noise is reduced as is the axis shift during processing of lenses with a slippery coating.

In addition, soft processing protects a glass lens from breaking during processing.

18 : Meas. after roughing: None, Exec, PLA

Factory setting: None

Sets whether or not to measure the lens shape again after roughing.

None: The lens shape is not measured after roughing.

Exec: The lens shape is measured again after roughing when the lens material is other than GLS.

Plastic: The lens shape is measured again after roughing when the lens material is PLA or HPL.

Duplicate lens measurement makes the processing time becomes longer. However, the shift of a bevel or groove from the desired position due to lens distortion occurred during roughing is reduced.

Regardless of this parameter setting, the lens shape is not measured when the "Measure in flat edge" and "To add safety bevel" parameters are set to None and the lens is not safety-beveled and grooved in flat edging.

19 : Maintenance message: Tank, Wheel, Exec, None

Factory setting: Exec

Sets whether or not to display a maintenance message that urges the user to replace processing water or dress the wheels every after processing of a specified number of lenses.

Tank: The "Please Clean Tank & Pump and Replace filter" message is displayed just after every 70 lenses processed.

Wheel: The "Wheel Dressing Reminder/Dress bevel and polish wheels" message is displayed just after every 2000 lenses processed.

Exec: Both Tank and Wheel settings become enabled.

Exec: Both Tank and Wheel settings become disabled.

20 : To add safety bevel: None, Exec

Factory setting: None

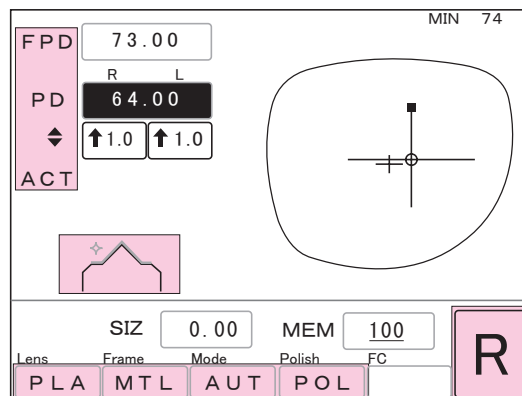
Sets whether or not to safety bevel the lens additional in retouching. When Exec is selected, the lens shape is measured before lens processing so that additional safety beveling and grooving become available.



2.16 Initial Layout Screen Save Function

This function sets the items on the layout screen displayed when the power is turned on. When the factory settings on the layout display differ from those ordinary use, it is possible to change and save the items to be displayed on the initial layout screen upon system activation.

○ Items to be saved


The items with can be saved.



- FPD, DBL, or eye point layout (whether or not to set eye point layout)
- PD or 1/2 PD [pupillary distance entry method]
- \blacklozenge , PD \blacklozenge , or BT \blacklozenge [optical center height entry method]
- ACT, BF, PAS [layout mode]
- PLA, HPL, PC, GLS, ACR, TRX, or PUR [lens material] (without GLS when of the PLB type)
- MTL, CEL, PNT, or NYL [frame type]
- AUT, GUI, EX, or (blank) [processing mode]
- POL or (blank) [polishing on or off]
- R or L [side initially displayed by pressing the  button]
- ON or OFF of  [safety beveling on or off]

Numerics displayed on the screen cannot be saved. For defaults of the FPD, PD, and optical center height, see “2.15 Setting Parameters” (page 86).

○ Procedures

- 1** Enter the desired value in each item on the layout screen.
- 2** Press and hold the  button.
A beep sounds to indicate that screen save is completed.

2.17 Storing and Calling Up Shape Data (Except for S and L Models)

Shape and layout data can be stored in the internal memory and can be called up when necessary. This memory function allows frames used repeatedly to be stored and called up as registered shapes. It takes the place of tracing and the required time is reduced.

When frames cannot be kept in hand due to lens replacement and such, trace the frames at order reception and store the data. It allows the lenses to be processed as soon as they are prepared.

Total of 100 sets of shape and layout data can be stored in standard specifications.

Using the optional barcode scanner, the data of 500 frames at maximum also can be managed.







Note

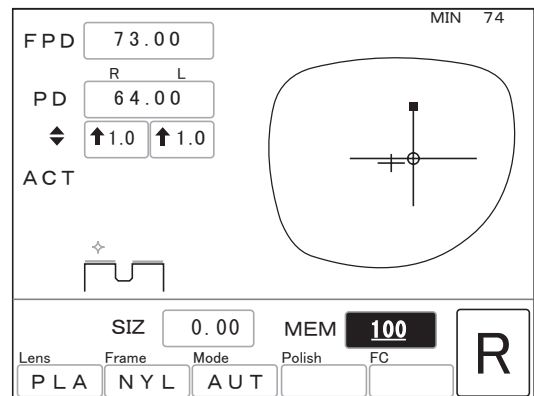
- When processing a lens with the data called up from the memory, be sure to check the displayed shape.
 - An error is displayed when the called-up data is abnormal. Store the data again without processing the lens.
- The communication and memory functions are not available at the same time. The memory function is disabled when the communication setting is to read data from a connected instrument.
 - For example, the memory function is enabled only when the "Ext. interface" parameter is set to None.
- The stored data is protected by an internal battery while the power switch is turned off. This battery is rechargeable, so just after purchase or when the instrument is not used for a long time (about one month), the battery becomes drained and the stored data may be deleted. In such a case, turn on the instrument and charge the battery. Leave the power on for 15 hours to fully recharge the battery. Supplying power to the instrument for one hour or more every day after the battery is fully charged maintains the battery at almost full charge. When the number of hours of use is short, turn on the power for several hours once a month.

2.17.1 In standard specifications






The internal memory in the standard specifications stores and manages total of 100 sets of shape and layout data.

○ Procedures for storing

- 1** Trace frames.
- 2** Display the lens shape on the LCD panel with the  button.
- 3** Enter the layout settings if necessary.
- 4** Move the cursor () to the MEM numeric field with the  button.
- 5** Select a memory address*¹ from 001 to 100 with the  or  button.
The number of the memory address in which data has been already stored is underlined.
- 6** Press the  button to store the shape, layout, lens material, frame type, processing mode, and polishing on/off.



○ Procedures for calling up

- 1** Move the cursor () to the MEM numeric field with the  button.
- 2** Select the memory address of the shape to be called-up with the  or  button.
The number of the memory address in which data has been already stored is underlined.
- 3** Press the  button until a beep sounds.
The shape is displayed on the LCD panel.

*1. The memory address (number in the MEM field) indicates the address storing shape or layout data. Storing data with the already-assigned address deletes the prior data.

2.17.2 In barcode specifications

The optional barcode scanner makes the barcode memory function enable, which stores and manages total of 500 sets of shape and layout data.



The read barcode number is stored as data register number. This makes frames managed simply by barcode.



- This barcode memory function cannot be used with the internal memory function in the standard specifications.
- When changing the specifications from standard to barcode, the data stored by the memory address is deleted.
- Confirm that the barcode scanner is connected to the RS-232C port (COM2) on the rear of the main body.

2


○ Procedures for storing

- 1** Trace frames.
- 2** Display the lens shape on the LCD panel with the  button.
- 3** Enter the layout settings if necessary.
- 4** Read the barcode corresponding to the frames to be stored.
The screen changes to the barcode screen and the read barcode^{*1} is displayed.
- 5** Press the  button to store the shape, layout, lens material, frame type, processing mode, and polishing on/off.

The screen returns to the layout screen after storing the data.

```
CODE : 0123456789012345
DATA WRITE : START
DATA READ : DATA
CANCEL : ENTER
```



- Press the  button to cancel data storage to the memory after reading the barcode.

*1. Storing data with the already-assigned barcode deletes the prior data.

○ Procedures for calling up

Set the “Layout memory” parameter to None beforehand when calling up shape data only without layout data. (see page 87)

- 1** The barcode corresponding to the frames to be called up is read.

The screen changes to the barcode screen and the read barcode is displayed.

- 2** Press the  button to call up the data.

The trace data corresponding to the barcode number is displayed on the layout screen.

```
CODE      : 0123456789012345
DATA WRITE : START
DATA READ  : DATA
CANCEL    : ENTER
```



- Press the  button to cancel data calling up from the memory after reading the barcode.

2.18 After Use

1 Clean the processing chamber.

Start running cooling water in the same manner as Steps 2 to 4 of “3.2 Wheel Dressing” (page 100). Eliminate processing waste adhered to the processing unit with a brush.



CAUTION • Keep the inside of the instrument away from water.

Malfunction of the instrument may result.



Note

- Clean the processing chamber after the last use of the day.

If the chamber is left unclean for several days after being used, the processing waste becomes settled and difficult to remove.

2 Turn the power off.

3 Perform check after use.

See “2.19.2 Check after use” (page 97).

4 Store accessories.

Wipe the accessories and store them free from loss or damage.

2.19 Daily Checks

2.19.1 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. Is the amount of processing water in the tank proper?

The water level must be between the Max and Min lines inscribed on the tank.

When processing water becomes very dirty, replace it. Failure to do so may decrease the accuracy of polishing. See “3.3 Replacing Processing Water and Filter” (page 104).

B. Does the instrument work properly?

- 1) Turn the power on.
- 2) Confirm that the layout screen is displayed without any errors.


C. Check visually that wheels are not be chipped or cracked.



WARNING • If the wheels are chipped or cracked, immediately stop the instrument and contact NIDEK or your authorized distributor.

Failure to do so may break and shatter the wheels resulting in injury.

D. Do wash water (for the inside wall of the processing chamber) and cooling water (for the wheels) flow properly?

- 1) Activate dress mode.
- 2) Press the  button and confirm that the wash water and cooling water flow.



CAUTION • Keep eyes away from spray.

Spray containing processing waste may cause eye damage.

If the wash water or cooling water does not flow, confirm that the Pump 1 and Pump 2 hoses and power cord are properly connected.

E. It is recommended to calibrate the tracing unit. (S and L models only)

See “3.6 Tracing Unit Calibration (S and L models only)” (page 108).

2.19.2 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. Is the power turned off?
- B. Is the processing chamber clean?
- C. Is the instrument dirty or damaged?
- D. Are all the accessories accounted for and free from damage?

Accessories: Pliable cup, pattern setting unit*, hexagonal screwdriver, hexagonal wrench, dressing stick, compound kit, cup remover, standard pattern*, and standard frames*

(S and L models only for the items with *)

2.20 Periodic Check

It is recommended to perform periodic check every two years 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
Wheels	Confirm that there is no deterioration in the processing performance. Replace a wheel if the processing surface is frayed. This will cause problems in practical use.
Spindle unit	Apply more grease to the waterproof seal. Replace the waterproof seal if it is deteriorated.
Processing chamber	Confirm that the processing chamber has no cracks, breaks, deterioration, or problematic water leakage. Replace the chamber if there is a problem.
Carriage	Apply more grease to the slide part (including the feed screw) of the lens chuck.
Inside of instrument	Confirm that no processing waste fly inside the instrument. Clean the inside of instrument if this occurs.
Safety beveling and grooving unit	Replace the wheel rotation belt. Apply more grease to the waterproof seal. Replace the waterproof seal if it is deteriorated. Confirm that the safety beveling wheel processing performance is not deteriorated. Replace a wheel if the processing surface is frayed. This will cause problems in practical use.
Feedwater and drain hoses (including feedwater hoses in the instrument)	Confirm visually and by touch that the feedwater and drain hoses have no cracks, deterioration, or clogging. Replace the chamber if there is a problem.
Processing chamber door rip	Replace the rip if it is deteriorated.

* The wheel must be replaced every two years or after processing 5,000 lenses. Contact NIDEK or your authorized distributor. However, the lens number referred to here is only a guide, so replacement of an earlier period may be needed under conditions such as hard lenses have been processed successively or numerous high-power minus lenses have been processed. In addition, if the wheels are damaged by operation mistakes such as processing glass lenses dressing with the roughing wheel for plastic lenses, the lifetime may be reduced substantially.



- Periodic checks must be performed by qualified personnel.
- Wheels must be also replaced by qualified personnel.









Do not replace the parts other than fuses and the stocking filter 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 screen is not displayed even though the power switch is turned ON ().	<ul style="list-style-type: none"> Confirm that the power plug is connected to a power outlet. Replace fuses.
The stylus cannot be set in the groove of frames.	<ul style="list-style-type: none"> Perform semiauto tracing.
The stylus comes off from the groove during tracing and tracing stops. The LED of the  button keeps blinking.	<ul style="list-style-type: none"> Press the  button to return the stylus to its original position and trace the frames again. When the stylus comes off because the frames are sharply warped, perform goggle type frame tracing.
Tracing restarts automatically and the LEDs of the  and  buttons blink a few seconds. Trace data cannot be read even though the  button is pressed.	<ul style="list-style-type: none"> There is a difference in circumference between the right and left rims. (Difference: 1 mm or more) Perform single-eye tracing.
Processing does not start even though the  button is pressed.	<ul style="list-style-type: none"> Confirm that lens layout settings have been entered. Processing cannot start when the processing chamber door is open. Close the processing chamber door. The Le 1000 intends to process the already-processed lens. Press the R/L button to switch the side of the lens to be processed.
A part of the displayed lens shape on the layout screen blinks after lens shape measurement.	<ul style="list-style-type: none"> The lens diameter is insufficient. The lens diameter is short. After pressing the  button to release the lens, replace the lens with a larger one or change the layout.
A message that requests wheel dressing is displayed.	<ul style="list-style-type: none"> Dress the wheel. See "3.2 Wheel Dressing" (Page 100).
The size of the processed lens is inadequate.	<ul style="list-style-type: none"> Calibrate the tracing unit. See "3.6 Tracing Unit Calibration (S and L models only)" (Page 108).
A maintenance message is displayed and the Le 1000 stops.	<ul style="list-style-type: none"> An abnormality has been detected. Press the  button to reset the Le 1000. Take the remedy according to the maintenance message. If the maintenance message is displayed again, contact NIDEK or your authorized distributor.

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



- Only qualified personnel can repair the instrument.
NIDEK will not be responsible for accidents caused by improper servicing.

3.2 Wheel Dressing

If wheels are dull, the processing time becomes longer or the accuracy in size and polishing becomes worse. Dress the wheels periodically.



WARNING • In dressing mode, the wheels are rotating with the processing chamber door open. Work with special care in dressing.

- **Wear protective glasses for wheel dressing.**

Spray containing processing waste may cause eye damage.



CAUTION • Be sure to select a dressing stick suited to the wheel type.

An improper dressing stick may damage to the wheel, which prevents normal lens processing. (The wheel configuration is different depending on the instrument type. See “19. Wheels” (Page 6).)

Roughing wheel for glass lenses ⇒ Use the dressing stick for roughing wheel (orange) WA80K.

Finishing wheel ⇒ Use the dressing stick for finishing wheel (white) WA320K.

Polishing wheel ⇒ Maintenance the wheel with the compound kit.

Safety beveling wheel ⇒ Use the dressing stick for finishing wheel (white) WA320K.

- **Never dress the roughing wheel for plastic lenses.**

It may damage to wheels, which prevents normal lens processing.

- **Apply only the flat surface of the tip of the dressing stick to the wheel, not its corners or edges.**

Otherwise, the wheel may be damaged.

- **Hold the dressing stick with both hands.**

The stick cannot be held strongly enough with one hand, so always use two hands. Otherwise, the corner of the stick may come in contact with the wheel and damage it.

- **Lightly apply the dressing stick to the wheel.**

Otherwise, the wheel may be damaged.

- **Dress the wheel holding the dressing stick with a minimum of 2 or 3 cm protruding.**

Failure to do so may cause injury by hand contact with the wheel as the dressing stick wears away.

- **When the dressing stick is worn to the length of 4 cm, replace it with a new one.**

As it is hard to hold the shortened dressing stick, your hand may contact with a wheel.


- **Do not repeatedly start and stop wheel rotation more than ten times.**


Operation may be prevented by the over-heat protection function.



Note

- When processing cannot be finished in a specified time due to the dull roughing wheel for glass lenses or finishing wheel, processing is discontinued and the message of “Rough Wheel Dressing Reminder” or “Finish Wheel Dressing Reminder” is displayed. Dress the wheel.

- When the  button is pressed during wheel dressing, the water curtain which prevents the processing chamber from getting soiled, stops.

If the water curtain is shut off accidentally, press the  button again to restart the water curtain.

- The grooving wheel does not need dressing.

○ Polishing wheel and flat polishing wheel

For polishing wheel and flat polishing wheel, maintenance the wheel with the compound kit.






CAUTION • Since vapor and particles produced during dressing is harmful, do not inhale them.

Wear a protective mask, protective glasses and such.

- **People with sensitive skin should wear protective gloves to prevent irritation.**
- **If there is any eye contact, immediately wash the eyes with running water and consult your doctor.**
- **Never ingest the compound since it is harmful.**

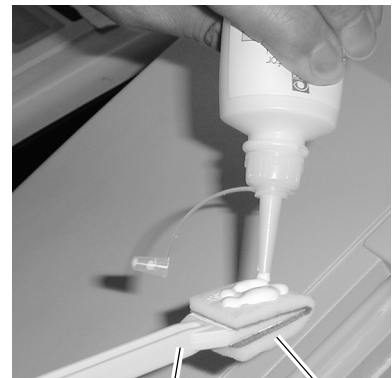
If accidentally ingested, immediately consult your doctor.


- 1) Press the  button.
The cooling water runs and the wheel rotates.
- 2) Press the  button to shut off the cooling water.
- 3) Press the  button to shut off the water curtain (wash water).



• When the water remains running, the compound is soon washed away and dressing cannot be properly performed. Be sure to shut off the water.

- 4) Attach a pad to the specified stick.
Attach the blue surface of the pad to the rough surface of the stick.
- 5) Thoroughly apply the supplied compound to only one side of the pad at a time.
- 6) Holding the stick by its handle, lightly apply the compound covered pad surface to the rotating polishing wheel.
The pad is gradually worn away. Dress the wheel until the white surface of the pad wears away. Take care not to let the pad wear away all the way to the stick.
- 7) Apply the compound to another side of the pad according to Steps 5) and 6) and dress the polishing wheel again.



- 8) Press the  button to start the cooling water and wash the wheel.

With water running, hold the stick by its handle and lightly touch the pad against the polishing wheel to wash away any compound from the surface of the wheel.

- 9) Press the  button.


The wheel and water come to a stop.

- 10) After confirming that the wheel has stopped, remove moisture from the surface of the polishing wheel by patting with a soft, dry cloth.

Do not scrub the wheel roughly with the cloth. Cloth fibers might become attached, interfering with polishing.

- 11) When the surface of the polishing wheel dries, confirm that the compound is completely washed away.

When the dried polishing wheel has a shine on its surface, the compound has been washed away. Check the wheel entirely.

When part of the surface has no shine, the compound is left. Press the  button to start the cooling water and wash the compound away.





○ Safety beveling wheel

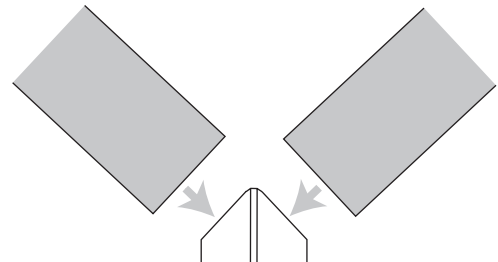
When safety beveling glass lenses are frequently, dress the safety beveling wheel also.


3


 Note

- Lightly apply the dressing stick to the wheel.
If the dressing stick is applied strongly, it may affect the safety bevel amount.

- 1) Press the  button.
The cooling water runs and the safety beveling wheel comes out.
- 2) Wet the dressing stick for finishing wheel well with running water.
- 3) Press the  button to shut off the cooling water.
- 4) **Lightly** apply the dressing stick to the safety beveling wheel.
Lightly apply the dressing stick to the surface for safety beveling.
- 5) Release the dressing stick from the safety beveling wheel.
- 6) Press the  button.
Start the cooling water to wash the wheel surface away.
- 7) Press the  button.
The safety beveling wheel is stored.



- 6 The screen returns to the MENU screen after dressing.
Press the  button.

- 7 The screen returns to the layout screen.
Press the  button twice.

3.3 Replacing Processing Water and Filter

Replace the processing water and sticking filter in the tank periodically. It is recommended to replace them for every 100 lenses processed.

Note

- Replace the processing water and the stocking filter when a message urging the user to clean the pump tank or replace the filter is displayed and processing is stopped.
- The pump tank consists of the cover, drain cover, receptacle, tank, casters. All parts are detachable.

A pump is attached to the cover. The side from which the pump cord extends is a heavier causing the cover to be unbalanced. Take care not to drop the cover or catch fingers when closing it.

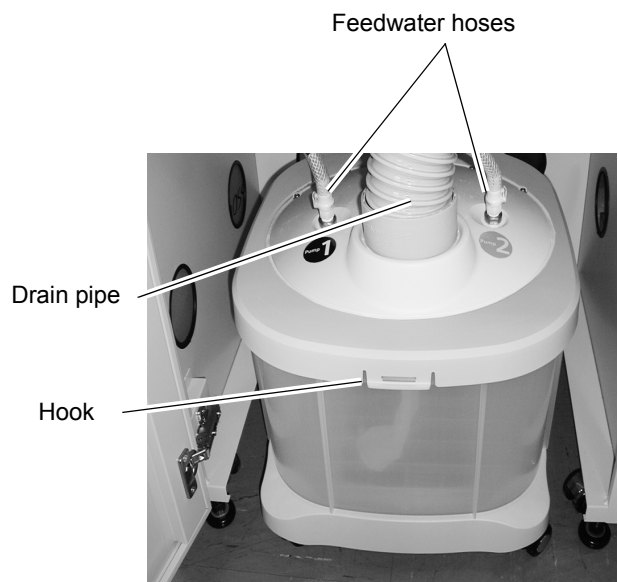


- 1** Take the tank out of the table.
Open the table and draw the tank toward you.

- 2** Disconnect the two feedwater hoses.
Press the gray button on each feedwater hose to disconnect.

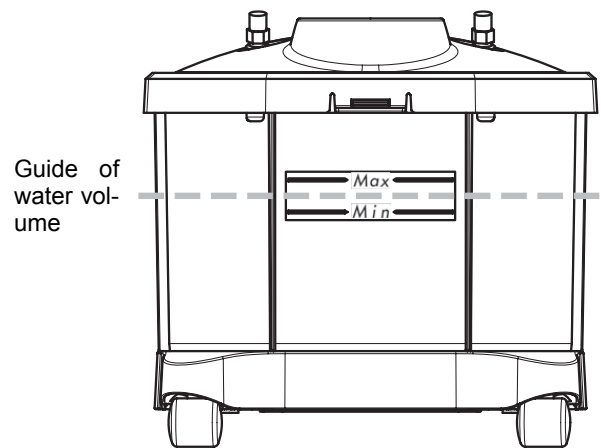
- 3** Disconnect the drain pipe from the tank.

- 4** Remove the cover of the tank.
Pull the hooks on the front and rear sides of the cover to remove the cover.



- 5** Uncover the drain cover and drop the stocking filter into the tank.
Tie the stocking filter at the top so that processing waste does not escape from the filter before putting the filter into the tank.

- 6 Throw away only the supernatant fluid in the tank.
- 7 Dispose of the wet processing waste remained in the tank as industrial wastes. Dry processing waste can be disposed of as general waste from business activities.
- 8 Wash away the bubbles or soil on the inner tank, inner cover, receptacle, and drain cover.
- 9 Put the water into the tanks up to the guide of water volume illustrated in the right figure.



3

Note

- Do not put a plastic sheet in the tank.
The pump fill may be blocked and it may cause malfunction.
- Do not allow the water level to rise over the maximum line. Failure to do so may cause malfunction or water leakage.

- 10 Attach the stocking filter to the drain cover.

The stocking filter is not reusable. Use a new one.

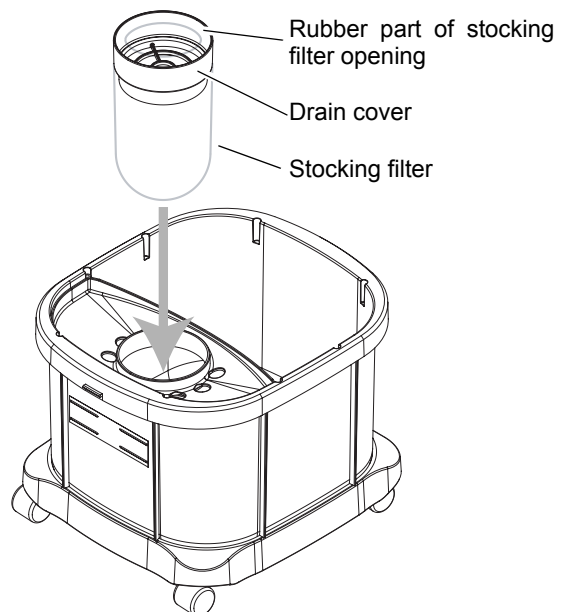
Bend the rubber part of the stocking filter opening inwardly on the top of the drain cover.

- 11 Thread the stocking filter through the biggest hole on the receptacle and attach the drain cover in its original position.

- 12 Put the cover on the tank.

Press the cover until the hooks on the front and rear sides snap on so that the cover is not held up.

- 13 Put the tank back into the table.



14 Connect the feedwater hoses and drain pipe.

Press into the feedwater hoses until a click is heard.

 Note

- There are two feedwater hoses on the bottom of the instrument. Be sure to connect the Pump 1 feedwater hose to the Pump 1 connector and connect the Pump 2 hose to the Pump 2 connector.
- There are two power cords on the cover of the pump tank. When disconnecting them from each outlet on the rear side of the instrument, connect the power cord with label “1” to the outlet for Pump 1 and connect that with label “2” to the outlet for Pump 2.

3.4 Replacing Fuses

If the instrument is not started even though the power switch is turned on, the fuses may be blown. Replace the fuses with spare ones.

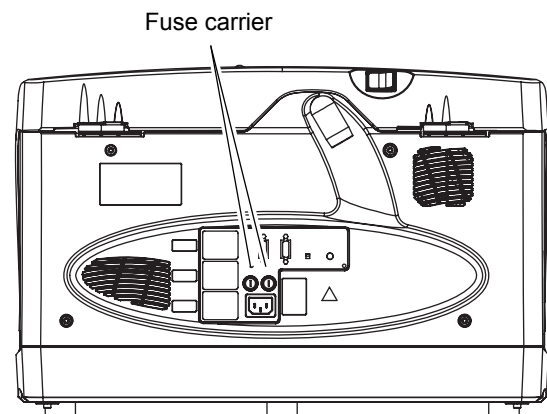


CAUTION • Before fuse replacement, turn off the instrument and disconnect the power cord from the wall outlet.

Electric shock may result.

- **Use the specified fuses only. (T 12.5 A 250 V)**
Using fuses other than specified may result in fire.
- **If fuses burn out frequently, do not touch the inside of the instrument but contact NIDEK or your authorized distributor.**
Contact with the inside of the instrument may cause electric shock.

- 1** Turn OFF (○) the power switch and disconnect the power cord from the wall outlet.
- 2** Turn the fuse carrier on the rear side counterclockwise while pushing it with a flat-blade screwdriver.
- 3** Pull out the fuse carrier.
- 4** Remove the used fuses and replace them with a new one.
- 5** Turn the fuse carrier clockwise while pressing with the screwdriver until the carrier fits.



3.5 Cleaning Exterior

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



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

3.6 Tracing Unit Calibration (S and L models only)



Calibrate the tracing unit using the provided standard frames and standard pattern. It is recommended to calibrate the tracing unit for high accuracy before use. In addition, perform calibration also when an error occurs in circumference.

1 Perform calibration with the standard frames.

- 1) Set the provided standard frames (□45) into the tracing unit.

Set the standard frames, with the side inscribed with the number facing up. Fit the rim clips into the grooves of the frames.



- 2) Press the  button while pressing the  button.


The LED of the  button blinks.

- 3) Press the  button.

Calibration starts.



After several traces, calibration finishes. A beep sounds, the instrument exits from calibration mode, and the standard frames are released.

Note

- To avoid calibration with frames other than standard ones, when the circumference exceeds the correction value of ± 1 mm, the LED of the  button blinks and calibration is not performed automatically. In such a case, take the following actions.

Confirm that the provided standard frames (□45) are used and press the  button.

Calibration becomes enabled. Go to Step 4).

When other frames are used, press the  or  button.

Calibration becomes disabled. Perform calibration with the standard frames again.

- 4) The standard frames are traced after calibration is completed.

- 5) Press the  button.

- 6) Check the trace data (circumference) on the MENU screen.



Perform calibration again with the standard frames when the circumference is not in the range of 162.83 ± 0.05 .

- 7) Remove the standard frames.

2 Perform calibration with the standard pattern.

- 1) Set the provided standard pattern into the tracing unit.

Set the standard pattern, with the side inscribed A facing up.

- 2) Press the  button while pressing the  button.

The LED of the  button blinks.

- 3) Press the  button.

Calibration starts.

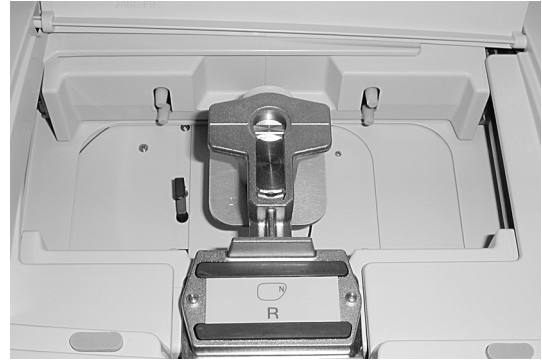
- 4) The standard pattern is traced after calibration is completed.

- 5) Press the  button.

- 6) Check the trace data (circumference) on the MENU screen.

Perform calibration again with the standard pattern when the circumference is not in the range of 162.83 ± 0.10 .

- 7) Remove the standard pattern.



For example)When the gap is 1 mm

$$-1/3 \times 1 \text{ (mm)} = \text{approx. } -0.3 \text{ (mm)}$$

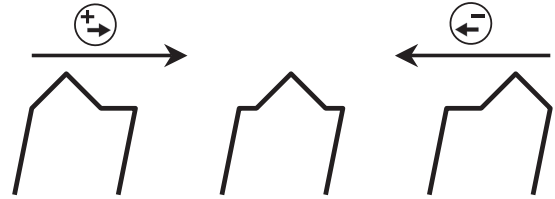
Reduce the value of the “Size preset(GLS,MTL)” parameter by 0.3 mm.



4 The screen returns to the layout screen.

Press the  button.

5 Repeat Steps 1 to 4 until the lens size becomes proper.

- 5** Change the setting value for the bevel position.



Use the  button to shift the bevel to the lens front surface and use the  button to shift it to the rear surface.

The arrow of ← before the value indicates that the groove is moved toward the front surface and the arrow of → indicates that the groove is moved toward the rear surface.

- 6** Return to the MENU screen.

Press the  button.

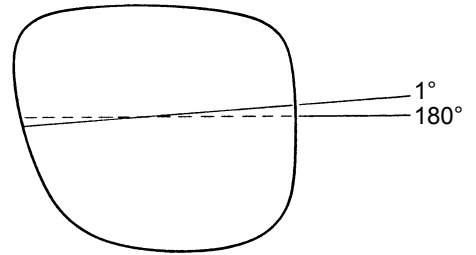
- 7** The screen returns to the layout screen.

Press the  button twice.

- 8** Repeat Steps 1 to 7 until the bevel becomes centered on the edge.

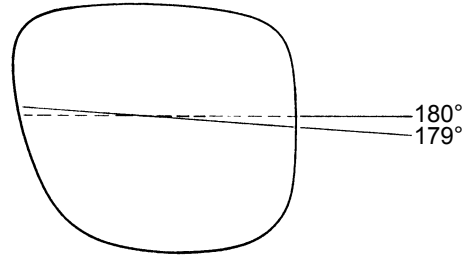
For example)When the finished axis angle is 1° for prescriptions of AXIS 180°, add +1.00 to the setting value.

Setting value: +2.00 → +3.00







For example)When the finished axis angle is 179° for prescriptions of AXIS 180°, subtract 1.00 from the setting value.

Setting value: +2.00 → +1.00



3

- 4** Return to the MENU screen.
Press the  button.
- 5** The screen returns to the layout screen.
Press the  button twice.
- 6** Repeat Steps 1 to 5 until the axis angle becomes proper.

- 2) Change the setting value with the  or  button.

Increasing the value increases the amount of the lens pressing against the wheel.

 Note

- If the value entered is too large, the polished edge may become rough. Check the polished surface while increasing the value by 0.1 mm increments.
Additionally, never increase the value to 0.5 mm or more.

- 4** Return to the MENU screen.

Press the  button.

- 5** The screen returns to the layout screen.



Press the  button twice.

- 6** Repeat Steps 1 to 5 until the lens is polished lens properly.*1

- 7** Check the lens finish size after polishing.

Check the beveled and flat-edged surface depending on each lens material. (flat edging only for the PL-4 type)

- 1) Call up the $\varnothing 45$ internal data.

Press the  button on the layout screen while pressing the  button.

- 2) Polish the beveled or flat-edged surface on the lens.

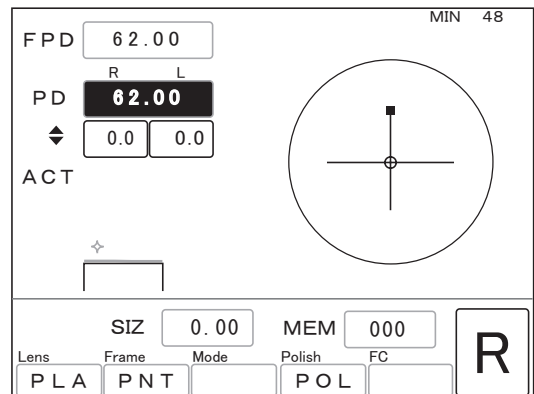
Leave the SIZ field as 0.00.

- 3) Check the lens finish size.

The diameter of the processed lens is normally as follows.

When of beveling: $\varnothing 45.00$ to 45.10 mm

When of flat edging: $\varnothing 45.00$ to 45.10 mm





*1. If a part of the lens remains unpolished even though the amount of the lens pressing against the wheel has been adjusted, the axis angle for polishing may be shifted. Adjust the "POL AXS const.(bevel)" or "POL AXS const.(flat)" parameter. See "3.12.3 Adjusting axis shift in polishing" (Page 122).


8 Adjust the polish size when the finish size is too large or small.

- 1) Display the MENU screen.

Press the  button.

- 2) Display the Size adjustment screen.

Move the arrow to "Size adjustment" with the  button and press the  button.

- 3) Move the arrow to the item to be changed with the  button.

(1) Adjustment of the finish size in beveling ⇒

For plastic or acrylic resin lenses: Polish size(PLA,bevel)

For polycarbonate, Trivex, or polyuretane lenses: Polish size(PC,bevel)



For high index plastic lenses: Polish size(HPL,bevel)

(2) Adjustment for the finish size in flat edging (including grooving) ⇒

For plastic or acrylic resin lenses: Polish size(PLA,flat)

For polycarbonate, Trivex, or polyuretane lenses: Polish size(PC,flat)

For high index plastic lenses: Polish size(HPL,flat)

- 4) Change the setting value with the  or  button.

For example)When the diameter of the processed lens is 45.5 mm, reduce the setting value by 0.50.

Setting value: 0.00 mm → -0.50 mm

- 5) Return to the MENU screen.

Press the  button.

- 6) The screen returns to the layout screen.

Press the  button twice.

Finish size(HPL,bevel)	: -0.45mm
Finish size(HPL,flat)	: -0.75mm
Rough size(PLA,bevel)	: +1.50mm
Rough size(PLA,flat)	: +1.50mm
Rough size(PC,bevel)	: +1.50mm
Rough size(PC,flat)	: +1.50mm
Rough size(HPL,bevel)	: +1.50mm
Rough size(HPL,flat)	: +1.50mm
Polish size(PLA,bevel)	: +0.10mm
Polish size(PLA,flat)	: +0.05mm
Polish size(PC,bevel)	: -0.30mm
Polish size(PC,flat)	: -0.30mm
→ Polish size(HPL,bevel)	: +0.10mm
Polish size(HPL,flat)	: +0.05mm

9 Repeat Steps 7 to 8 until the lens size becomes proper.

4 Adjust the axis angle.

Adjust the axis angle in beveling and flat edging.

Parameter

- When of beveling ⇒ POL AXS const.(bevel)
- When of flat edging ⇒ POL AXS const.(flat)

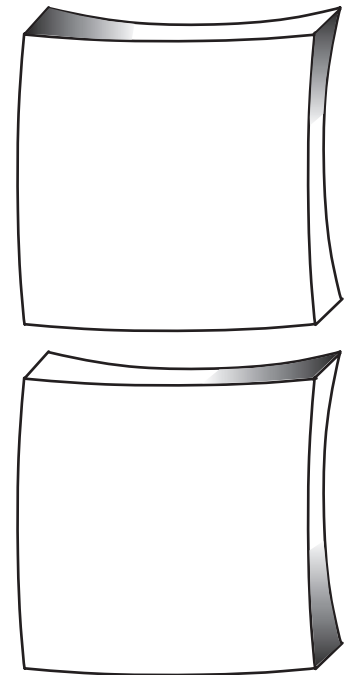
Add the axis angle correction amount to the setting value (current setting) to adjust the axis angle.

For example) Viewing the lens from the front, when the upper left edge is not polished, add the setting value by about 0.50.

Setting value: +1.00 → +1.50

For example) Viewing the lens from the front, when the upper right edge is not polished, reduce the setting value by about 0.50.

Setting value: +1.00 → +0.50



5 Return to the MENU screen.

Press the  button.

6 The screen returns to the layout screen.

Press the  button twice.

7 Repeat Steps 1 to 6 until the lens is polished properly.

3.13 Adjustment for Grooving (S and SNT Models Only)

3.13.1 Setting depth and width

- 1** Display the MENU screen.


Press the  button.

```
*****
*                                     *
*               M E N U               *
*      Length R:177.98 L:178.02      *
*                                     *
*Execute : Press ENTER
*
→ Process counter
  Wheel dressing
  Size adjustment
  Bevel adjustment
  AXIS adjustment
  PD adjustment
  Groove & SFB adjustment
```

- 2** Display the Groove & SFB adjustment screen.


Move the arrow to “Groove & SFB adjustment” with the  button and press the  button.

```
*****
* Groove & SFB adjustment             *
*                                     *
*EXIT : Press ENTER
*
→ Groove Depth      : 0.3mm
  Groove Width      : 0.6mm
  Groove Position    : →0.20mm
  Safety Bevel Mode  : F & R
  SFB Width(BVL,Front) : + 0.2mm
  SFB Width(BVL,Rear)  : + 0.3mm
  SFB Width(FLT,Front) : + 0.2mm
  SFB Width(FLT,Rear)  : + 0.3mm
  SFB Wheel Height   : -0.30mm
  SFB Wheel Pos. (BVL,F) : -0.20mm
  SFB Wheel Pos. (BVL,R) : 0.00mm
  SFB Wheel Pos. (FLT,F) : -0.25mm
```

- 3** Move the arrow to the item to be changed with the  button.

Groove Depth: .mm
 Factory setting: 0.3 [mm]
 Setting range: 0.0 to 0.8 mm

Groove Width: .mm
 Factory setting: 0.6 [mm]
 Setting range: 0.6 to 1.2 mm

- 4** Change the default with the  or  button.

- 5** Return to the MENU screen.

Press the  button.

- 6** The screen returns to the layout screen.

Press the  button twice.

6 Return to the MENU screen.

Press the  button.

7 The screen returns to the layout screen.

Press the  button twice.

8 Repeat Steps 1 to 7 until the groove is made in the proper position.

3.13.3 When groove depth is not as specified

When the groove depth is not as specified even though it is uniform around the total circumference, change the setting value for the height of the safety beveling wheel to adjust the groove depth.


- 1 Display the MENU screen.

Press the  button.

```


*****
*                               *
*               M E N U         *
*      Length R:177.98 L:178.02 *
*                               *
*Execute : Press ENTER
*
-> Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
   Groove & SFB adjustment
    
```

- 2 Display the Groove & SFB adjustment screen.



Move the arrow to “Groove & SFB adjustment” with the  button and press the  button.

```

*****
*                               *
*      Groove & SFB adjustment *
*                               *
*EXIT : Press ENTER
*
-> Groove Depth           : 0.3mm
   Groove Width           : 0.6mm
   Groove Position       : -0.20mm
   Safety Bevel Mode     : F & R
   SFB Width(BVL,Front)  : + 0.2mm
   SFB Width(BVL,Rear)   : + 0.3mm
   SFB Width(FLT,Front)  : + 0.2mm
   SFB Width(FLT,Rear)   : + 0.3mm
   SFB Wheel Height      : -0.30mm
   SFB Wheel Pos. (BVL,F) : -0.20mm
   SFB Wheel Pos. (BVL,R) : 0.00mm
   SFB Wheel Pos. (FLT,F) : -0.25mm
    
```

- 3 Move the arrow to “SFB Wheel Height” with the  button.

- 4 Change the setting value for the safety beveling wheel height.

Use the  button to make the groove depth shallower and use the  button to make it deeper.

- 5 Return to the MENU screen.

Press the  button.

- 6 The screen returns to the layout screen.

Press the  button twice.

- 7 Repeat Steps 1 to 6 until the groove is made with the proper depth.



3.13.4 When groove depth is not uniform

The axis angle for grooving may have become shifted. Adjust the axis angle.

1 Display the MENU screen.

Press the  button.


2 Display the AXIS adjustment screen.

Move the arrow to "AXIS adjustment" with the  button and press the  button.

```

*****
*                AXIS adjustment                *
*****
*EXIT : Press ENTER

-> PLA AXS const. (bevel)  :-1. 20
   PLA AXS const. (flat)  :-1. 20
   PC AXS const. (bevel)  :-1. 20
   PC AXS const. (flat)   :-1. 20
   GLS AXS const. (bevel) :-5. 00
   GLS AXS const. (flat)  :-5. 00
   GROOVE&SFB AXS const  :+0. 33
   SFB AXS const. (BVL/F) : 0. 00
   SFB AXS const. (BVL/R) : 0. 00
   SFB AXS const. (FLT/F) : 0. 00
   SFB AXS const. (FLT/R) : 0. 00
    
```

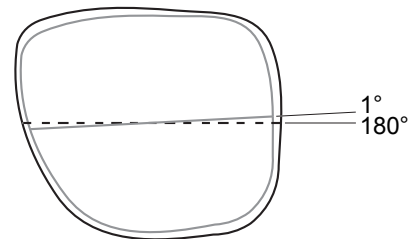
3 Move the arrow to "GROOVE&SFB AXS const" with the  button.

4 Adjust the axis angle.

Add the axis angle correction amount to the setting value (current setting) to adjust the axis angle.

For example) Viewing the lens from the front, when the axis angle of the groove is 1°, add the setting value by 1.00.

Setting value: +2.00 → +3.00



5 Return to the MENU screen.

Press the  button.

6 The screen returns to the layout screen.

Press the  button twice.

7 Repeat Steps 1 to 6 until the groove depth becomes uniform.

3.14 Adjustment for Safety Beveling (S and SNT Models Only)

3.14.1 Setting safety beveling mode and amount



1 Display the MENU screen.

Press the  button.

```


*****
*                                     *
*               M E N U               *
*      Length R:177.98 L:178.02      *
*                                     *
*Execute : Press ENTER
*
-> Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
   Groove & SFB adjustment
    
```

2 Display the Groove & SFB adjustment screen.

Move the arrow to “Groove & SFB adjustment” with the  button and press the  button.

```

*****
*                                     *
*      Groove & SFB adjustment      *
*                                     *
*EXIT : Press ENTER
*
-> Groove Depth      : 0.3mm
   Groove Width     : 0.6mm
   Groove Position  : -0.20mm
   Safety Bevel Mode : F & R
   SFB Width(BVL,Front) : + 0.2mm
   SFB Width(BVL,Rear)  : + 0.3mm
   SFB Width(FLT,Front) : + 0.2mm
   SFB Width(FLT,Rear)  : + 0.3mm
   SFB Wheel Height   : -0.30mm
   SFB Wheel Pos. (BVL,F) : -0.20mm
   SFB Wheel Pos. (BVL,R) : 0.00mm
   SFB Wheel Pos. (FLT,F) : -0.25mm
    
```

3 Move the arrow to the item to be changed with the  button.

Safety Bevel Mode: F&R, R

F&R: Safety beveling of both front and rear surfaces

R: Safety beveling of the only rear surface

In flat edging, the both surfaces are safety-beveled regardless of this parameter setting.



SFB Width(BVL,Front): □.□mm

Factory setting: 0.2 [mm]

Sets the guideline for the safety bevel amount of the front surface in beveling.

SFB Width(BVL,Rear): □.□mm

Factory setting: 0.3 [mm]

Sets the guideline for the safety bevel amount of the rear surface in beveling.

SFB Width(FLT,Front): □.□mm

Factory setting: 0.2 [mm]

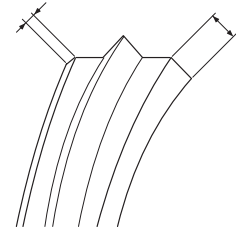
Sets the guideline for the safety bevel amount of the front surface in flat edging.

SFB Width(FLT,Rear): □.□mm

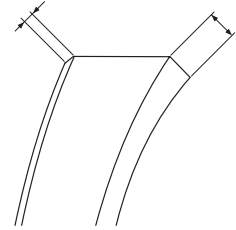
Factory setting: 0.3 [mm]

Sets the guideline for the safety bevel amount of the rear surface in flat edging.

Safety bevel amount of the front surface Safety bevel amount of the rear surface



Safety bevel amount of the front surface Safety bevel amount of the rear surface



4 Change the setting with the  or  button.

5 Return to the MENU screen.

Press the  button.

6 The screen returns to the layout screen.

Press the  button twice.

3.14.2 When safety bevel amount is not as specified

When the safety bevel width is not as specified even though the amount is uniform around the total circumference, change the setting value for the safety beveling wheel position to adjust the safety bevel amount.

1 Change the setting values for the safety bevel amount as follows:

See “3.14.1 Setting safety beveling mode and amount” (Page 129).

- (1) When adjusting the safety bevel amount of the front surface in beveling
⇒ Set the SFB Width(BVL,Front) parameter to 0.2 mm.
- (2) When adjusting the safety bevel amount of the rear surface in beveling
⇒ Set the SFB Width(BVL,Rear) parameter to 0.3 mm.
- (3) When adjusting the safety bevel amount of the front surface in flat edging
⇒ Set the SFB Width(FTL,Front) parameter to 0.2 mm.
- (4) When adjusting the safety bevel amount of the rear surface in flat edging
⇒ Set the SFB Width(FTL,Rear) parameter to 0.3 mm.

2 Safety bevel a lens.

3 Check the safety beveling condition.

The safety bevel amount in each setting value is normally within ± 0.2 mm. When the value is out of this range, correct the setting value for the safety beveling wheel position as follows.

4 Correct the setting value of the safety beveling wheel on the Groove & SFB adjustment screen.

- 1) Display the MENU screen.

Press the  button.


- 2) Display the Groove & SFB adjustment screen.

Move the arrow to “Groove & SFB adjustment” with the  button and press the  button.

```



*****
* Groove & SFB adjustment *
*****
*EXIT : Press ENTER

→ Groove Depth      : 0.3mm
Groove Width       : 0.6mm
Groove Position    : -0.20mm
Safety Bevel Mode  : F & R
SFB Width(BVL,Front) : + 0.2mm
SFB Width(BVL,Rear)  : + 0.3mm
SFB Width(FLT,Front) : + 0.2mm
SFB Width(FLT,Rear)  : + 0.3mm
SFB Wheel Height   : -0.30mm
SFB Wheel Pos. (BVL,F) : -0.20mm
SFB Wheel Pos. (BVL,R) : 0.00mm
SFB Wheel Pos. (FLT,F) : -0.25mm
    
```

- 3) Move the arrow to the item to be changed with the  button.

- (1) When adjusting the safety bevel amount of the front surface in beveling
⇒ SFB Wheel Pos.(BVL,F)
- (2) When adjusting the safety bevel amount of the rear surface in beveling
⇒ SFB Wheel Pos.(BVL,R)
- (3) When adjusting the safety bevel amount of the front surface in flat edging
⇒ SFB Wheel Pos.(FLT,F)
- (4) When adjusting the safety bevel amount of the rear surface in flat edging
⇒ SFB Wheel Pos.(FLT,R)

4) Change the setting value for the safety beveling wheel position.

Use the  button to reduce the safety bevel amount (move the wheel away from the lens) and use the  button to increase the amount (move the wheel toward the lens).

5 Return to the MENU screen.

Press the  button.

6 The screen returns to the layout screen.

Press the  button twice.

7 Repeat Steps 1 to 6 until the safety bevel amount becomes within the setting value ± 0.2 mm.

3.14.3 When safety bevel amount is not uniform



When the safety bevel amount is not uniform around the total circumference, the axis angle for safety beveling have become shifted.

Adjust the axis angle for safety beveling.

1 Display the MENU screen.

Press the  button.


2 Display the AXIS adjustment screen.

Move the arrow to "AXIS adjustment" with the  button and press the  button.

```

*****
*                AXIS adjustment                *
*****
*EXIT : Press ENTER


-> PLA AXS const. (bevel)  :-1. 20
   PLA AXS const. (flat)  :-1. 20
   PC AXS const. (bevel)  :-1. 20
   PC AXS const. (flat)   :-1. 20
   GLS AXS const. (bevel) :-5. 00
   GLS AXS const. (flat)  :-5. 00
   GROOVE&SFB AXS const  :+0. 33
   SFB AXS const. (BVL/F) : 0. 00
   SFB AXS const. (BVL/R) : 0. 00
   SFB AXS const. (FLT/F) : 0. 00
   SFB AXS const. (FLT/R) : 0. 00
    
```


3 Move the arrow to each of the parameters from "SFB AXS const.(BVL/F)" to "SFB AXS const.(FLT/R)" with the  button.

- (1) When the safety bevel amount of the front surface is not uniform in beveling
=> SFB AXS const.(BVL/F)
- (2) When the safety bevel amount of the rear surface is not uniform in beveling
=> SFB AXS const.(BVL/R)
- (3) When the safety bevel amount of the front surface is not uniform in flat edging
=> SFB AXS const.(FLT/F)
- (4) When the safety bevel amount of the rear surface is not uniform in flat edging
=> SFB AXS const.(FLT/R)

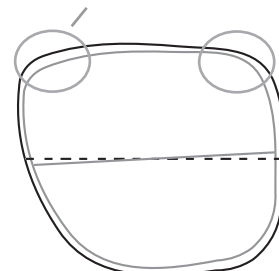
4 Adjust the axis angle.

Add the axis angle correction amount to the setting value (current setting) to adjust the axis angle.

Example 1) Viewing the lens from the front, when the safety bevel width in the upper left is wider than that in the upper right, correct the value with the  button.

Example 2) Viewing the lens from the rear, when the safety bevel width in the upper left is wider than that in the upper right, correct the value with the  button.

The safety bevel width in the upper left is wider than that in the upper right.



5 Return to the MENU screen.

Press the  button.

6 The screen returns to the layout screen.

Press the  button twice.

7 Repeat Steps 1 to 6 until the safety bevel amount becomes uniform.

3.15 List of Consumables and Maintenance Parts

Item	Order number	Remarks
Compound kit	40380-1700	
Dressing stick for finishing wheel	41002-M611	
Dressing stick for roughing wheel	41002-M612	
Stocking filter	40377-M061	One set: 20 pieces See "3.3 Replacing Processing Water and Filter" (Page 104).
Fuse	804-02-02149	See "3.4 Replacing Fuses" (Page 107).
Double-sided adhesive pad for pliable cup	40370-M087	One set: 100 pieces
Pliable cup (red)	40370-M094	
Pliable cup (green)	40370-M095	

4.


SPECIFICATIONS AND ACCESSORIES

4.1 Safety Features

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

[Processing chamber door check function at start of processing]


Lens processing cannot start unless the processing chamber door is closed.

 **CAUTION** • The instrument does not stop when the processing chamber door is opened during processing. Never open the processing chamber door during lens processing.

Confirm that the wheel has come to a complete stop before opening the processing chamber door.

[STOP button] 

This is the button to shut down lens processing. It is also used as emergency stop button under abnormal conditions. Briefly turn off the power switch to restore power after shutting down processing.

Press the  button to restart processing.

[Self-diagnosis function]




This function always checks the instrument state in operation. When an abnormality has been detected, the operation is immediately stopped and an error indicating the contents of the abnormality is displayed.


This instrument is equipped with a self-diagnosis function, which monitors the instrument during operation.

If any malfunction occurs, the instrument stops automatically and the error code is displayed on the display. Please report the error code as well as the symptoms when contacting NIDEK or your authorized distributor due to malfunction. It is required for accurate servicing.

The following table indicates the contents of the error code. Attempt to correct the problem according to the table before reporting the malfunction.

Error code table

Error code	Contents of the error
0001	Processing data transmission error Action: Check connection of the cable(s) from the RS-232C port(s) or periphery instrument(s).
0002	Processing data reception error Action: Check connection with the cable(s) from the RS-232C port(s) or periphery instrument(s).
0003	Noncompliant data reception (in VCA communication) Action: Confirm whether or not the received processing information is proper.
0107	Roughing is not completed.
0108	The wheel does not rotate at start of processing. Action: Turn off the power and then turn it on again after 20 seconds or more.
0201	The feelers are not initialized. Action: Move the feelers to the center of the processing chamber by lifting it up. Press the  button. When the feelers cannot be moved due to the lens, turn off the power once. Move the axis securing the lens to the side.
0204	The front surface cannot be measured after rear surface measurement. Action: Lightly press the feelers during front surface measurement.
0205	The data for lens measurement or the lens measurement result is abnormal. Action: Restart operation from frame tracing.
0206	The data for first lens shape measurement is abnormal.
0207	The measurement data of the startpoint does not match that of the endpoint for lens shape measurement. Action: Measure the lens shape again with the  button.
0208	The position of feelers is out of the measurable range during rear surface measurement.
0209	The position of feelers is out of the measurable range during front surface measurement.
0210	The lens thickness data for lens shape measurement is abnormal. Action: Press the  button to cancel the error display. Restart operation from lens shape measurement.
0301	The processing Y-axis data is abnormal. Action: Restart operation from frame tracing.

0302	The processing X-axis data is abnormal. Action: Measure the lens shape again with the  button when the error occurs before processing.
0401	Abnormal initialization of the X, Y, θ -axis motors
0402	Abnormal initialization of the X-axis motor
0403	Abnormal initialization of the Y-axis motor
0404	Abnormal initialization of the θ -axis motor
0408	Abnormal initialization of the F-axis motor Action: Press the  button to cancel the error display. Turn off and on the power after moving the feelers to the center of the processing chamber.
0501	The chuck motor dose not operate.
0601	The motor for safety beveling and grooving wheels is abnormal (overcurrent).
0602	Abnormal initialization of the safety beveling and grooving unit
0603	Error of the sensor for the safety beveling and grooving unit process end
0604	Abnormal attachment position of the sensor for the safety beveling and grooving unit process end
0801	Unauthorized CPU interruption error
0802	CPU address error
0803	CPU DMA bus error
0900	EEPROM writing error
0901	The compensation value of the size for roughing is out of the specified range.
0902	The size compensation value is out of the specified range.
0903	The bevel position setting value is out of the specified range.
0904	The value of the wheel position parameter is out of the specified range.
0905	Frame memory verification error
0906	Frame memory CPU check error

○ Other functions

- Layout Optical center, frame center, bifocal
 - Layout entry item FPD, PD (1/2PD), optical center height (vertical optical center, PD ◆ , BT ◆)
 - Retouching Available
 - External communication
 RS-232C: two ports (one port for connection with a PC or blocker, one port for connection with the barcode scanner)
 - Control outlet For Pump 1: one unit
 For Pump 2: one unit
 For VACUUM : one unit
-

○ Power requirements

- Power supply voltage
 AC 115 V ±10% 50/60 Hz
 - Power consumption 1.3 kVA
-

○ Control outlet

- Output voltage AC 100 V
 - Current capacity 1 A at maximum
 - Leakage current 1.5 mA or less
 - Withstand voltage AC 1 kV 50/60 Hz 1 sec between power terminal and protective ground
 * The connected cables must be double insulated.
-

○ Dimensions and weight

- Dimensions 528 (W) × 493 (D) × 356 (H) mm
 - Weight (main body only) 41 kg (with tracing unit and safety bevel and grooving mechanism)
-

○ Environmental conditions (in use)

- Installation location Indoors
 - Temperature 5 to 40 °C
 - Humidity 30 to 80% (Relative humidity must not exceed 50% at a maximum temperature of 40 °C)
 - Altitude 2000 m or less at sea level
 - Overvoltage Category II
 - Pollution degree 2
-

○ Environmental conditions (in transport and storage)

- Temperature –25 to 70 °C
 - Humidity 10 to 95% (non-condensing)
* The conditions in transport and storage apply to the instrument when packed.
-

4.2.2 Circulation pump and tank (optional)

- Number of pumps 2 units
- Maximum rated pressure 30 kPa
- Maximum flow 10 liters/minute
- Maximum tank dimensions for reference3
75 (W) × 438 (D) × 354 (H) mm (when using the specified table)
- Overvoltage Category II
- Tank capacity 15 to 18 liters (when of the circulation type)

4.3 Standard Configuration

4.3.1 Standard accessories

• Pliable cup (red, green)	5 units for each
• Double-sided adhesive pad	1 set (100 sheets)
• Cup remover	1 unit
• Dressing stick for Roughing wheel for glass lenses (WA80K)	1 unit (except for the PLB type)
• Dressing stick for finishing wheel (WA320K)	1 unit
• Compound kit for polishing wheel	1 unit (except for the PC type)
• Pattern setting unit	1 unit (S and L models only)
• Standard frame	1 unit (S and L models only)
• Standard pattern	1 unit (S and L models only)
• Hexagonal screwdriver (2.5 mm)	1 unit
• Drain hose adapter set	1 set
• Power cord	1 unit
• Spare fuse	2 units
• Accessory case	1 unit
• Operator's manual	1 volume

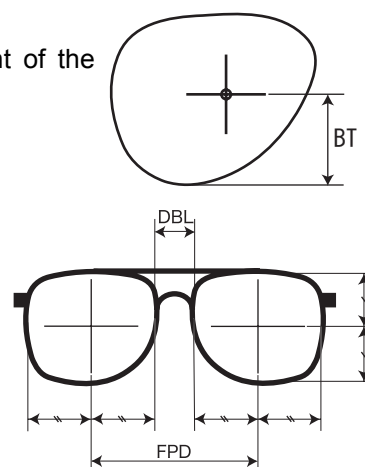
4.3.2 Optional accessories

- Specified table
- Barcode scanner
- Circulation pump and tank
- Mini cup set

5.

GLOSSARY

- 3-D lens circumference
Length assumed that groove of the frame is stretched straight
- Active mode
A lens is blocked with a pliable cup at the optical center.
- Auto grooving mode
This is the mode to groove lenses for nylon frames with a computer-calculated position and curve.
- Auto processing mode
This is the mode to bevel lenses according to the computer-calculated data.
- Bifocal mode
This is the mode for processing bifocal lenses.
A lens is blocked with the pliable cup using a centering device in the 5 mm in and 5 mm up position from the midpoint of the segment top.
- BT↕
Distance between the optical center and the lowest point of the lens shape
- DBL
Width between the nasal ends of left and right frames
- EX lens flat edging mode
Processing mode for flat edging EX lenses
- EX lens grooving mode
Processing mode for EX lenses. In this mode, grooving which has the curve profiled along the rear surface is performed.
- EX lens processing mode
Processing mode for EX lenses. In this mode, beveling which has the curve profiled along the rear surface is performed.
- FPD
Distance between right and left frame centers. The FPD is calculated by the boxing system in this instrument.
- Frame changing mode
This is the mode to mount lenses in use into other frames.(except for SNT and LNT models)



- Goggle type frame tracing

When the frames are sharply warped, the stylus may come off the groove. In such a case, fasten only the one frame between the rim clips and perform single-eye tracing. (except for SNT and LNT models)

- Guided grooving mode

This is the mode to enter the value of the bevel curve and position manually.

- Guided processing mode

This is the mode to enter the value of the bevel curve and position manually.

- Initial layout screen save function

This function sets the items on the layout screen displayed when the power is turned on.

- Memory function

Shape and layout data can be stored in the internal memory and can be called up when necessary. (except for SNT and LNT model)

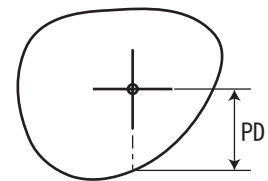
Total of 100 sets of shape and layout data can be stored.

- Passive mode

A lens is blocked with a pliable cup at the frame center.

- PD⇄

Distance between the optical center and the straight down point of the lens shape



- Polishing

Lens edges are polished after beveling or flat edging. It saves the effort of buffing to the minimum.

- Safety beveling

Both surfaces or rear surface of a lens are safety-beveled before processing end.

- Simple frame changing mode

Lenses can be processed in frame changing mode without tracing.

Use this mode when the lens size is sufficient for frame changing.

- Semiauto tracing

The tracing method for fitting the stylus into the groove by hand before tracing for the frame whose stylus is not automatically set in the groove. (except for SNT and LNT models)

- Soft processing

This is the method for roughing by controlling the pressure on a lens more precisely.

The processing time may increase slightly but the processing noise is reduced as is the axis shift during processing.

- Trivex

This setting is used when processing plastic lenses susceptible to heat (such as Trivex).

6.

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