NIDEK

Multifunction Edger

ME-1500

OPERATOR'S MANUAL

Easy Search by Purpose *(page 6)*

Original instructions

NIDEK CO., LTD.

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Before Use

Be sure to read the SOFTWARE LICENSE AGREEMENT (page 2) before using this product.

This operator's manual includes information such as the operating procedure, safety precautions, maintenance, and specifications.

Be sure to read this operator's manual before using this product.

Keep this manual handy for reference.

If you encounter any problems or have questions about this product, please contact Nidek or your authorized distributor.

44501-P922-A4

IMPORTANT - READ CAREFULLY

THIS AGREEMENT APPLIES TO THE NIDEK SOFTWARE AND ACCOMPANYING DOCUMENTS. PLEASE READ THIS AGREEMENT CAREFULLY AND THOROUGHLY BEFORE USING SOFTWARE.

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b) such Amendments are commercially reasonable and not contrary to the objective of this Agreement, even if such Amendments are disadvantageous to you.

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10.1. This Agreement will be governed by and construed in accordance with the laws of Japan.

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11. SEVERABILITY

11.1. If any provision or any portion of any provision of this Agreement will be held to be invalid or unenforceable, that provision will be severed from this Agreement and such invalidity or unenforceability will not affect the remaining provisions of this Agreement. The remaining provisions of this Agreement will continue in full force and effect.

12. SURVIVAL

12.1. The provisions of 2, 3, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19 and this provision will survive the termination of this Agreement and will be binding after the termination of the Agreement.

13. ASSIGNMENT

13.1. This Agreement or any part of this Agreement may not be assigned or transferred without prior written consent of NIDEK. The permitted assignee or transferee must agree to all the terms and conditions of this Agreement prior to the assignment or transfer.

13.2. This Agreement will be binding upon the permitted assignee or transferee and be enforceable by NIDEK.

14. ENTIRE AGREEMENT

14.1. This Agreement constitutes the entire agreement between you and NIDEK concerning the Software, and supersedes any prior written or oral agreement between you and NIDEK. No modification of this Agreement will be binding unless otherwise agreed in writing.

15. NO WAIVER

15.1. The failure of NIDEK to enforce at any time or for any period the provisions hereof in accordance with its terms will not be construed to be a waiver of such provisions or of the rights thereafter to enforce each and every provision.

16. NO THIRD PARTY RIGHTS

16.1. This Agreement is intended to be solely for the benefit of you and NIDEK and is not intended to confer any benefits upon or create any rights in favor of any person other than you and NIDEK.

17. HEADINGS

17.1. All headings are for convenience only and will not affect the meaning of any provision of this Agreement.

18. LANGUAGE

18.1. The license agreement for the Software may be provided in multiple languages. In such event, unless otherwise agreed in writing, the following shall apply:

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b) If you use the Software in Japan, the license agreement for the Software shall be executed and delivered in a text using Japanese language. The text using the Japanese language shall prevail and control.

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Indications in this manual

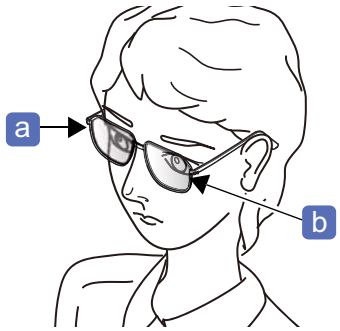
- In this manual, often repeated phrases are indicated by symbols.

Symbol	Indication	Example
	Press the button.	CHUCK
	Tap the button, tab, or entry field.	Auto [Height] field
	Press the button. Select the desired item from the displayed pop-up menu.	[Layout] → Metal
→	Moves to another screen.	→ Layout screen
	A pop-up menu is displayed.	→ Pop-up menu
	* When operating procedures, such as entering processing conditions, have screen images displaying pop-up menus, the description of " → Pop-up menu" is omitted.	
→	Enter a value with the displayed numeric keypad.	
/	[A] or [B]	Passive / Active
	See another section.	"♦ *Intended use" (page 23)*
	See parameter settings.	A-01*" Language" (page 175)* * "A-01" is the number for search, which is described in the parameter list.

- Definition of right (R) and left (L)

The right and left indication of the glasses or lenses in this operator's manual are as viewed by the person wearing the glasses.

In the figure as shown to the right, the right lens (R) a is on the right and the left lens (L) b is on the left as viewed by the person wearing the glasses.



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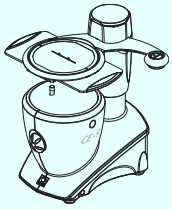
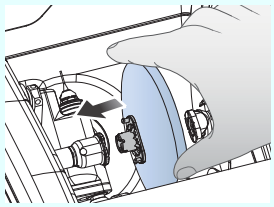
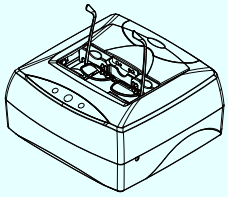
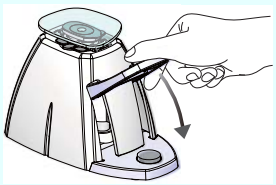
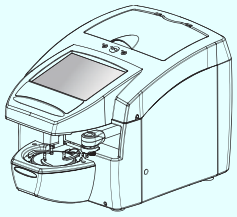
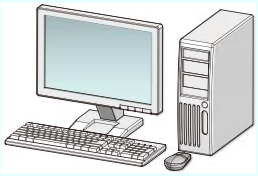
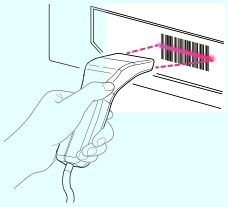
	*"3.2 Startup and Shut-down" (page 48)*		• *"3.5 Preparation for Blocking" (page 69)* • *"3.6 Blocking Lenses with CE-9" (page 75)*
	*"3.3 Data Loading, Saving, Receiving, and Sending" (page 50)*		*"3.7 Setting and Remov-ing Lenses" (page 80)*
	*"3.3.5 Loading shape data from LT-980" (page 55)*		• *"3.8.1 Removing pliable cup and pliable cup for high base curve lenses" (page 82)* • *"3.8.2 Removing nano cup supporter" (page 83)*
	*"3.3.6 Loading shape data from ICE-1500" (page 56)*		*"3.8.3 Removing mini cup or nano cup" (page 84)*
	*"3.3.7 Receiving shape data from server com-puter" (page 57)*	*"4 LAYOUT SETTING AND PROSESSING" (page 85)* 	*"4.1 Entering Processing Conditions" (page 86)*
	• *"3.3.8 Loading shape data with barcode scanner" (page 58)* • *"3.3.9 Loading shape data with internal barcode scan-ner" (page 59)*		*"4.2 Entering Layout Data" (page 91)*
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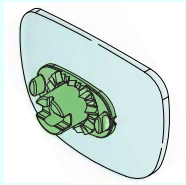
<td>  </td>
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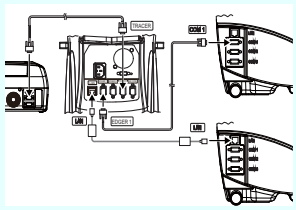
<tr><td>  </td><td>“5.3.2 Partial groove / partial bevel editing” (page 154)</td><td>  </td><td>“6.2 Connection” (page 197)</td></tr>
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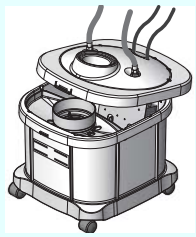
<tr><td>  </td><td>“5.4.2 Partial step editing” (page 169)</td><td>  </td><td>“7.6 Pump Tank Water and Filter Replacement” (page 239)</td></tr>
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1 SAFETY PRECAUTIONS

1.1 For Safe Use

Be sure to read this manual before use. The operating procedures and cautions for safety must be thoroughly understood before using the instrument. Keep this manual handy for reference.

About signal words

" ⚠ WARNING" indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury. Warnings for safety must be strictly followed at all times.

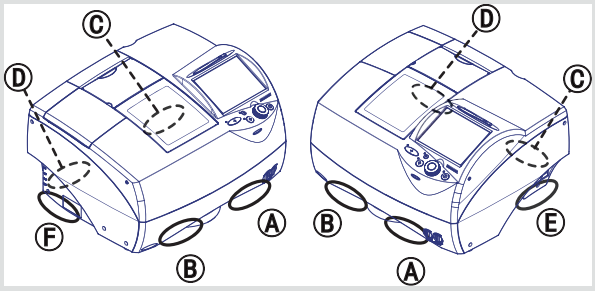
" ⚠ CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage accident. Cautions for safety must be strictly followed at all times.

1.2 Usage Precautions

Before use

⚠ WARNING

- Use a hand cart when moving the instrument. Always have two or more people lift it.
  The instrument may be dropped, resulting in injury or stumbling.
- To lift the instrument, hold it by the front bottoms (A) and (B), rear bottoms (C) and (D), and right and left bottoms (E) and (F) as shown to the right.
  Lifting the instrument by holding the cover or such may cause the instrument to be dropped, resulting in injury or stumbling.
- Be careful not to get fingers caught when setting the instrument down.
  Fingers may be injured if they get caught between the table and instrument.



⚠ CAUTION

- Do not use the instrument for purposes other than those intended. Nidek is not responsible for accidents or malfunctions caused by misuse.

  For the intended purpose of this instrument, see *"♦ Intended use" (page 23)*.

- Operate the instrument under the specified conditions.

  " Environmental conditions (during use)" (page 251)

- Install the instrument in a location with an adequate operating area as shown in *" [Operating area and maintenance work area] (unit: mm)" (page 18)*.

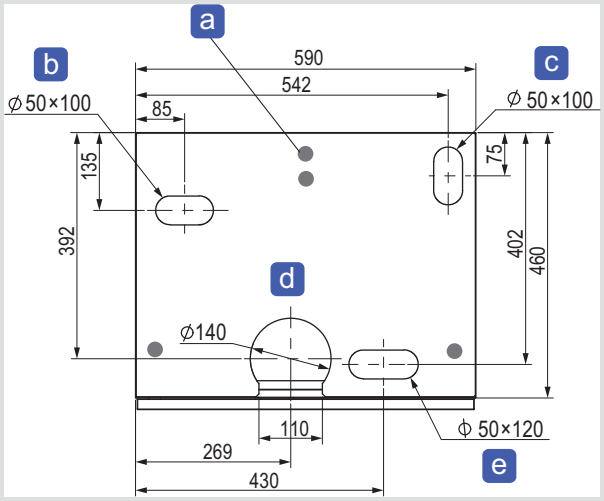
- Install the instrument in a location that meets the following conditions. Malfunction, electric shock, or fire may result.
  - No exposure to moisture
  - Level and stable surface free from vibration or impact
  - No exposure to the direct flow of air conditioning
  - Large enough so as not to block the cooling fan on the right side of the instrument

- Only personnel authorized by Nidek are allowed to disassemble, repair, and modify the instrument. Do not touch the interior of the instrument in any manner other than the procedures specified.

  Electric shock, injury, or malfunction may result.

- It is recommended to use the optional table.

- If a table other than the optional one is used, use one that meets the following conditions. If its size and strength are not sufficient, the instrument may fall in the event of impact or disaster, resulting in injury or malfunction.
  - Sturdy enough to support the weight of the instrument (52 kg)
  - Larger than the dimensions as indicated below and high enough for the pump tank to be installed below
  - Equipped with adjustable legs allowing the instrument to be level and stable
  - Provided with openings for the pipes and cords in the table top



a Positions of the instrument rubber feet (four), b Opening for the exhaust pipe, c Opening for the cords

d Opening for the drain pipe, e Opening for the cooling water and cleaning water pipes

⚠ CAUTION

- When handling the power supply or electrical components, observe the following. Instrument malfunction, electric shock, or fire may result.
  - Use a power outlet that meets the power supply specifications.
  - Be sure to connect the power plug to a grounded power outlet.
  - Fully insert the power plug into the power outlet.
  - Install the instrument in a place where the power plug can be easily disconnected from the power outlet without the help of any tool.
  - Do not place heavy objects on the power cord or pinch it between any objects.
  - Do not use power strips or extension cables for power supply.
  - Be sure to use the supplied power cord. Also do not connect the supplied power cord to any other equipment.
  - Before connecting cables to the instrument, turn off the power switch and disconnect the power cord from the power outlet by holding its plug.
  - When connecting cables to the RS-232C port or LAN port, connect them securely.
- For the LAN cable, use an STP cable of category 5 or higher.
- When connecting the instruments directly with a LAN cable, use a cross cable.
- Protect the display from splashing water. Do not operate the display or buttons with wet hands.
  Water seepage into the instrument may result in electric shock, malfunction, or fire.
- When a pump other than that of the circular pump tank (optional) is used, it must run on a maximum electric current of 1 A or less including inrush current.
  If the electric current exceeds 1A, the instrument may be damaged.
- When a pump other than that of the circular pump tank (optional) is used, keep the water pressure 30 kPa or less.
  If the water pressure exceeds 30 kPa, water leakage may occur resulting in instrument damage.
- Do not allow the water level to rise over the maximum line in the pump tank.
  An overflow of water or bubbles, or instrument malfunction may result.
- If the water in the pump tank spills and the floor becomes wet, wipe it off with a clean dry cloth.
  A slippery wet floor may cause injury.

During use

⚠ CAUTION

- Perform a pre-use check before using the instrument each day.
  "3.2.1 Startup" (page 48)
- Before processing, be sure to visually check that the wheels or drill bit is not broken or cracked. If any abnormality is found in the wheels, immediately stop the instrument operation and contact Nidek or your authorized distributor.
  If chipped or cracked wheels or drill bit is used, they may break or shatter, resulting in injury.
- When setting a lens or the lens clamp, do not touch the wheels or drill bit.
  The drill bit has a sharp edge. Touching the drill bit may result in injury.
- In the event of smoke or strange odors from the instrument, immediately turn off the instrument and disconnect the power plug from the power outlet. Once it is confirmed that the smoke has stopped, contact Nidek or your authorized distributor.
  Use 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.

⚠ CAUTION

- Replace the power cord with a new one if its internal wires are exposed, power is intermittent when the cord is moved, or the cord and/or plug are too hot to touch.
  Electric shock or fire may result.
- The processing chamber door opens and closes automatically. Keep your face and hands away from the door to prevent them from being hit. Be careful not to get fingers caught when the door closes.
- Do not place any object on the processing chamber door.
  If it falls into the processing chamber when the door opens, malfunction may result.
- Do not open the processing chamber door during processing.
  Water containing processing waste may splash causing eye injury.
- The display is a touch screen. Do not touch it with a hard or sharp object.
  Touching the display with an object such as a ballpoint pen may scratch it.
- Be sure to select the material correctly for the lens to be processed.
  If the material selection is incorrect, the lens may break or the lifetime of the processing wheels may be reduced substantially.
- Be careful not to get fingers caught when chucking a lens.
  Injury may result.
- Do not start processing or tracing without chucking a lens, pattern, or demo lens.
  Malfunction may result.
- Do not inhale the vapor or particles produced during lens processing. If necessary, wear a protective mask and glasses.
  Depending on the lens material, the vapor and particles may be harmful.
- When using the instrument for a prolonged period, wear hearing protection devices such as earplugs.
  Noise during processing may cause hearing loss.
- A processed lens may have sharp edges. If necessary, wear gloves to handle it.
  Finger injury may result.
- Safety bevel the front and rear surfaces of glass lenses after processing.
  Fingers may be injured by burrs.
- When connecting or disconnecting the USB flash drive, turn off power to the instrument.

After use

⚠ CAUTION

- After using the instrument, perform an after-use check.
  “3.2.2 Shutdown” (page 49)
- When connecting or disconnecting the power plug to/from the power outlet, turn off power to the instrument.
  Connecting or disconnecting the power plug in the power status may result in instrument malfunction.
- If the instrument is not to be used for a long period of time, disconnect the power plug from the power outlet.

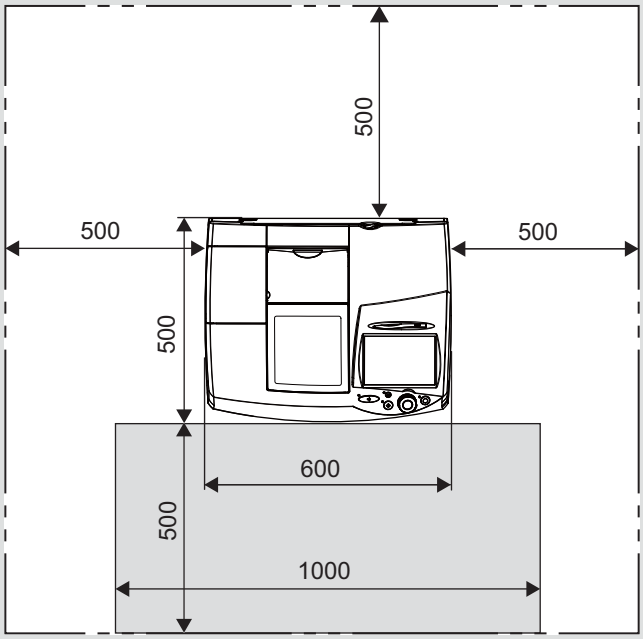
Maintenance

⚠ CAUTION

- For wheel replacement, contact Nidek or your authorized distributor.
  Wheel replacement by someone other than personnel authorized by Nidek may result in injury or malfunction.
- During dressing, the wheel rotates while the processing chamber door is open. Follow the precautions below. Injury or malfunction may result.
  - Do not touch the wheel while it is rotating.
  - If necessary, wear a protective mask and glasses.
  - Use a dressing stick suitable for the wheel type.
  - Do not dress the roughing wheel for plastic lenses.
  - When dressing the wheel, hold the dressing stick with both hands with a minimum of 2 to 3 cm protruding.
  - When the dressing stick is worn to a length of 4 cm, replace it with a new one.
- When replacing the drill bit, observe the following precautions. Injury or burn may result.
  - Use the drill bit specified by Nidek.
  - Before replacing the drill bit, enter drill replacement mode and turn off the instrument and disconnect the power plug from the power outlet.
- Immediately after drilling, the drill bit is extremely hot. Wait for at least 1 minute, and wear gloves before replacing the drill bit.
- It is recommended to have periodical inspection on the instrument every two years.
  Do not replace parts other than the lens adapter, drill bit, cooling fan filter, water in the pump tank, and stocking filter.
  Instrument malfunction or injury may result.
- Occasionally clean the prongs of the power plug with a dry cloth.
  If dust settles between the prongs, a short circuit may occur resulting in fire.
- When cleaning the instrument, observe the following. Poor processing precision or malfunction may result.
  - Do not use organic solvents such as paint thinner to clean the exterior of the instrument.
  - Wear a protective mask to avoid inhaling particles.
  - Perform routine cleaning of the instrument after processing approximately 100 lenses.
  - Processing waste becomes settled and hard to remove if it is left for several days. Remove it at the end of the day when processing has been performed.
- When the instrument is moved while installed on the table, remove the cables, pipes, and pump tank from the table.
  The pump tank may topple over resulting in injury or malfunction.
- Do not store the instrument in a location that is exposed to rain or moisture, or harmful gases or liquids.
- When transporting the instrument, use the specified packaging materials.
  Excessive vibration or impact to the instrument may cause malfunction.
- During transport and storage of the packed instrument, maintain the ambient temperature and humidity within the ranges specified below.
  “ Environmental conditions (during transport and storage)” (page 252)

⚠ CAUTION

- When performing maintenance, secure a sufficient working space.
  Maintenance in an insufficient space may result in accident or injury.
  [Operating area and maintenance work area] (unit: mm)



* A height of 1,000 mm or more is required above the table on which the instrument is placed for maintenance.

Other cautions

- There may be a few defective (black dot) or constantly-lit (red, blue, or green) pixels on the display. This does not represent a failure of the display. This is due to manufacture limitations of liquid crystal displays.
- Lens cups are a consumable. It is recommended that they be replaced after approximately 1,000 uses.
- Use the stocking filters specified by Nidek. They are a single-use item. Do not reuse them.
  The filter or feedwater pipe may become clogged with processing waste.

Disposal

⚠ CAUTION

When disposing of packaging materials, waste and water generated during lens processing, or any other waste, dispose of or recycle them in accordance with the laws and local ordinances of your country. It is recommended to entrust the disposal to a designated industrial waste disposal contractor.

Inappropriate disposal may be subject to punishment or contaminate the environment.

Safety function

For safe use, this instrument is equipped with the following function.

Self-diagnostic function

This instrument is equipped with a self-diagnostic function that monitors the instrument during operation.
If any malfunction occurs, the instrument stops automatically and an error code is displayed on the screen.
Report the error code as well as the symptoms when contacting Nidek or your authorized distributor regarding the malfunction. This will assist in accurate servicing.

1.3 Labels and Symbols

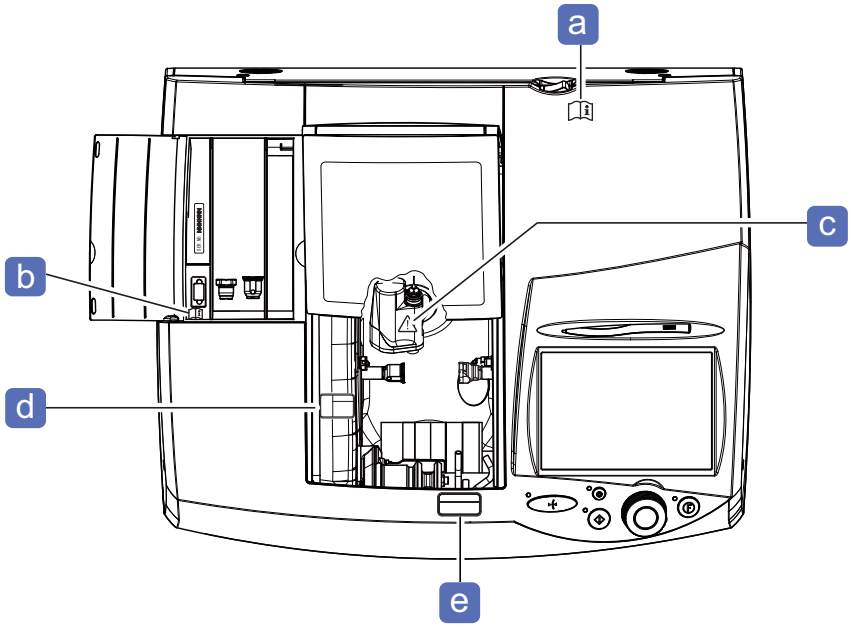
To call attention to users, labels and indications are provided on the instrument.

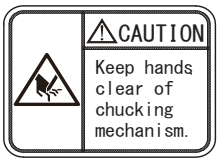
If labels are peeling off, characters are fading, or otherwise becoming illegible, contact Nidek or your authorized distributor.

	Indicates that caution must be taken.
	Indicates that dangerous voltage may be present.
	Indicates that caution must be taken to avoid fingers getting caught by the lens chuck shaft.
	Indicates that the operator is advised to refer to the related instructions in the operator's manual.
	Power off
	Power on
	Alternating current
	Date of manufacture
	Manufacturer
	Separate collection of waste electrical and electronic equipment

◆ Labels and symbols on instrument

[Top view]



Tag	Label or symbol	Relevant section
a		*" Before use" (page 13)*
b		• *" During use" (page 15)* • *"3.4.4 Backing up data to USB flash drive" (page 64)*
c		*" During use" (page 15)*
d		*" During use" (page 15)*
e		*" During use" (page 15)* *"3.7.1 Setting lenses" (page 80)*

2 INTRODUCTION

◆ Intended use

The ME-1500 is a lens edger that is designed to receive and edit shape data to process eyeglass lenses according to the type of frame.

2.1 Processing Available for Each Type

Type PLB-2R8S is generally the basis for the explanations in this manual.

◆ Lens materials available for each type

Type	Lens materials						
	CR39	Hi-index	Polyca.	Acrylic	Trivex	Urethane	Glass
PLB-8S	○	○	○	○	○	○	×
PLB-2R8S	○	○	○	○	○	○	○

- ○: Available
- ×: Unavailable

◆ Processing available for each type

Type	Processing						
	Beveling	Flat edging	Safety beveling Grooving	Polishing	Drilling	High base curve processing	Step beveling
PLB-8S	○	○	○	○	○	○	○
PLB-2R8S	○	○	○	○	○	○	○

- ○: Available
- Polishing, grooving, drilling, and step beveling are not available for glass lenses.

◆ Design processing available for each lens material

Processing	Lens materials							Remarks
	CR39	Hi-index	Polyca.	Acrylic	Trivex	Ure-thane	Glass	
Shape change	○	○	○	○	○	○	○	"Glass" is applicable to PLB-2R8S only.
Design cut	○	○	○	○	○	○	×	
Partial grooving	○	○	○	○	○	○	×	
Partial beveling	○	○	○	○	○	○	×	
Faceting	○	○	○	×	○	×	×	
Special safety beveling	○	○	○	×	○	×	×	
Step beveling	○	○	○	○	○	○	×	

- ○: Available
- ×: Unavailable

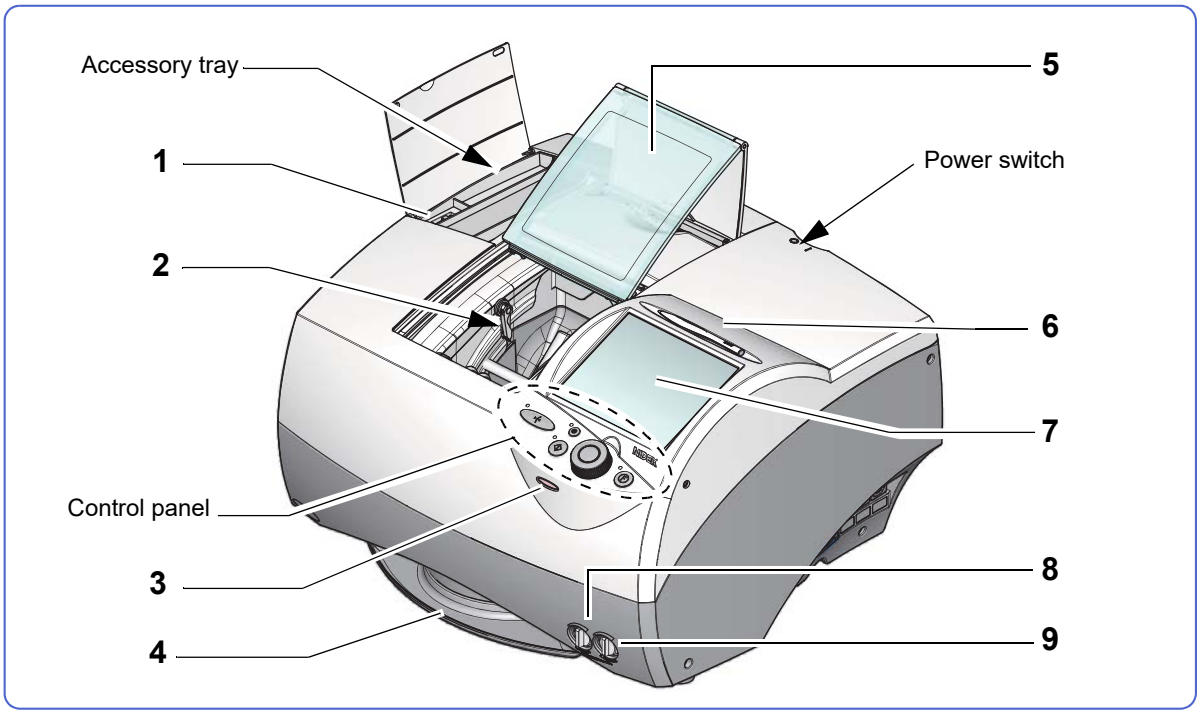
◆ Design processing available for each frame material

Processing	Frame materials					Remarks
	Metal	Plastic	Optyl*a	Two Point	Nylor	
Shape change	○	○	○	○	○	
Design cut	○	○	○	○	○	
Partial grooving	×	×	×	○	○	
Partial beveling	×	×	×	○	○	
Faceting	×	×	×	○	×	
Special safety beveling	○	○	○	○	○	
Step beveling	○	○	○	×	×	

*a. An optyl frame is made of epoxy resin.

- ○: Available
- ×: Unavailable

2.2 Instrument Configuration and Functions



1 USB port

Used to connect the optional USB flash drive.

2 Processing chamber

3 Internal barcode scanner

Reads barcodes.

4 Accessory tray

Used to store small items such as a cup holder.

5 Processing chamber door

Closes when START is pressed. It opens automatically when processing is complete.

6 Touch pen

Selects the desired button on the display.

7 Display

Touch screen for operations and settings

8 Cooling water control

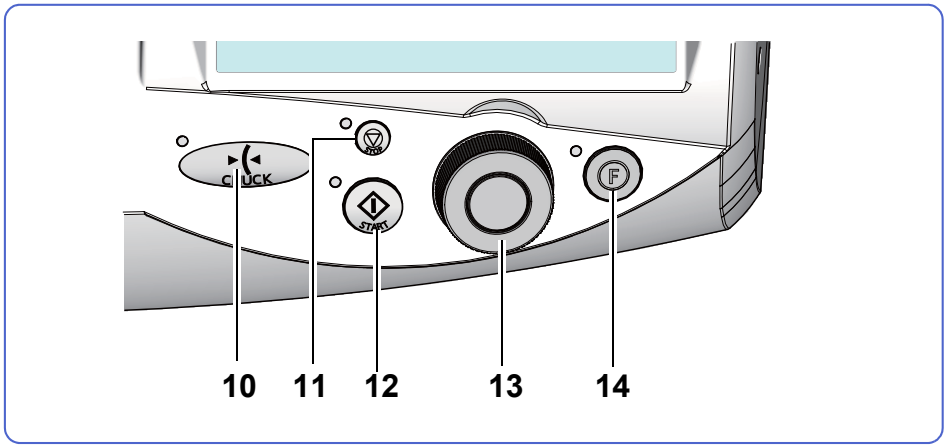
Controls the volume of the cooling water flowed over the wheels.

"7.3.2 Controlling the flow volumes of cooling water and cleaning water" (page 226)

9 Cleaning water control

Controls the volume of the cleaning water flowed in the processing chamber.

◆ Control panel



10 [CHUCK] button

Chucks or releases a lens.

11 [STOP] button

Stops processing.

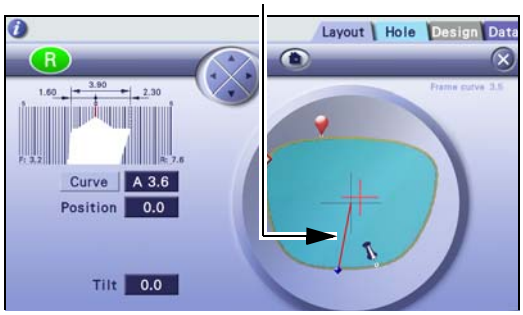
12 [START] button

Starts processing.

13 Jog dial

- Turning the jog dial changes the value of the selected item.
  This function is available on the layout screen, hole edit screen, design screen, and data management screen.
- Pressing the center button selects the desired item displayed on the screen.
- Turning the jog dial with the simulation screen displayed rotates the sectional view position line. Quickly turning the dial rotates the line continuously. Pressing the center button stops the rotation of the line.

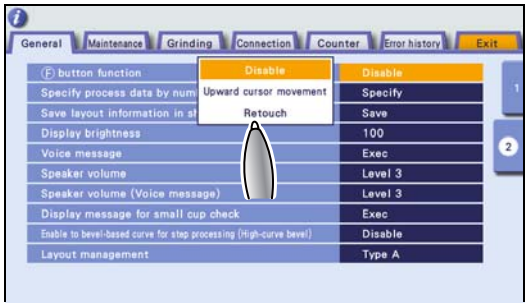
Sectional view position line

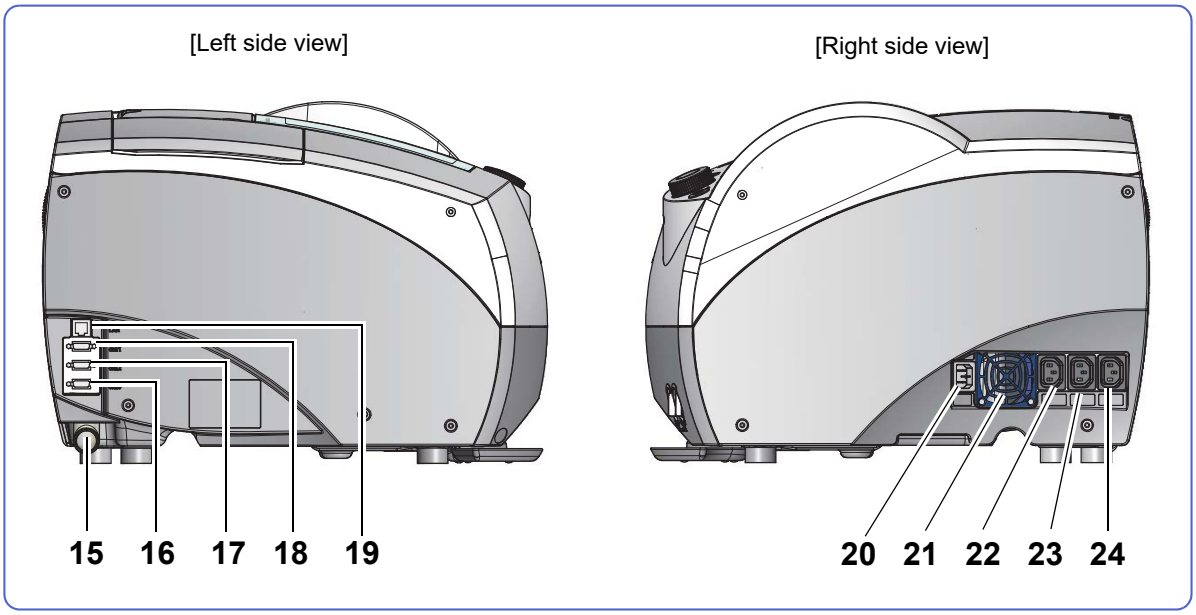


14 Function button

This button functions as specified by the parameter: [Disable], [Upward cursor movement], or [Retouch].

B-01“ *[F] button function” (page 176)*





15 Air inlet/outlet

Used to connect the duct of the deodorizer LED-200 (option).

16 RS-232C port (COM3)

Used to connect a tracer.

17 RS-232C port (COM2)

Used to connect the external barcode scanner (option).

18 RS-232C port (COM1)

Used to connect an intelligent blocker or a server computer.

19 LAN port (LAN)

Used to connect an Ethernet*1 LAN cable.

20 Power inlet

21 Cooling fan

22 Outlet for cooling water pump (Pump1)

Used to connect the power cord of the cooling water pump.

23 Outlet for cleaning water pump (Pump2)

Used to connect the power cord of the cleaning water pump.

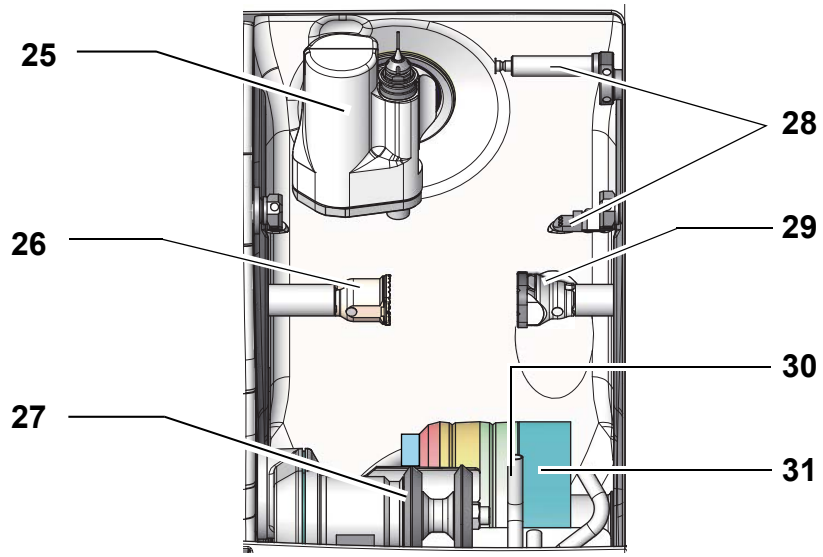
24 Outlet for vacuum cleaner (VACUUM)

Used to connect the power cord of a vacuum cleaner (commercial wet and dry cleaner), a deodorizer, or a filtration unit.

The connected instrument turns on or off in conjunction with the ME-1500.

*1. Ethernet is the standard for wired LAN. Communication is conducted at 10BASE-T or 100BASE-TX, both of which are compatible with this instrument.

◆ Processing chamber

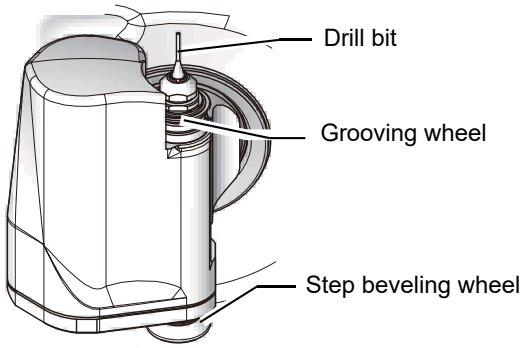


25 Drilling and grooving unit

Used for drilling, grooving, and step beveling.

Drill bit replacement

"7.4 Drill Bit Replacement" (page 228)



26 Lens adapter

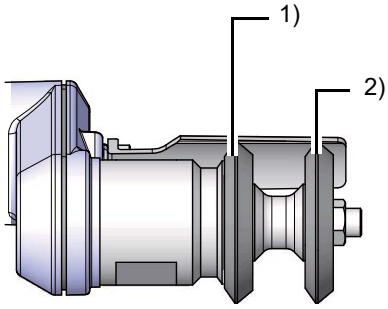
Holds a lens blocked with a cup.

27 Safety beveling wheels

Used for safety beveling.

1) Safety bevel finishing wheel

2) Safety bevel polishing wheel



28 Feeler unit

Measures the outline and surface of a lens, demo lens, or pattern.

29 Lens clamp

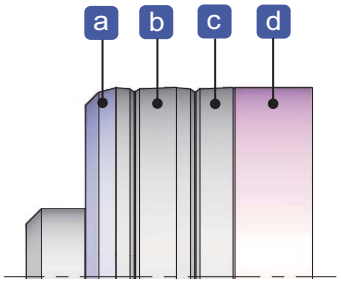
Secures a lens.

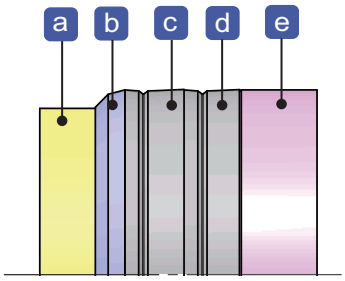
30 Cooling water unit

Cools the wheels.

31 Wheels

There are two types of wheel configuration: PLB-8S and PLB-2R8S.

PLB-8S	Configuration
a : High base curve finishing wheel b : Finishing wheel c : Polishing wheel d : Roughing wheel for plastic lenses	

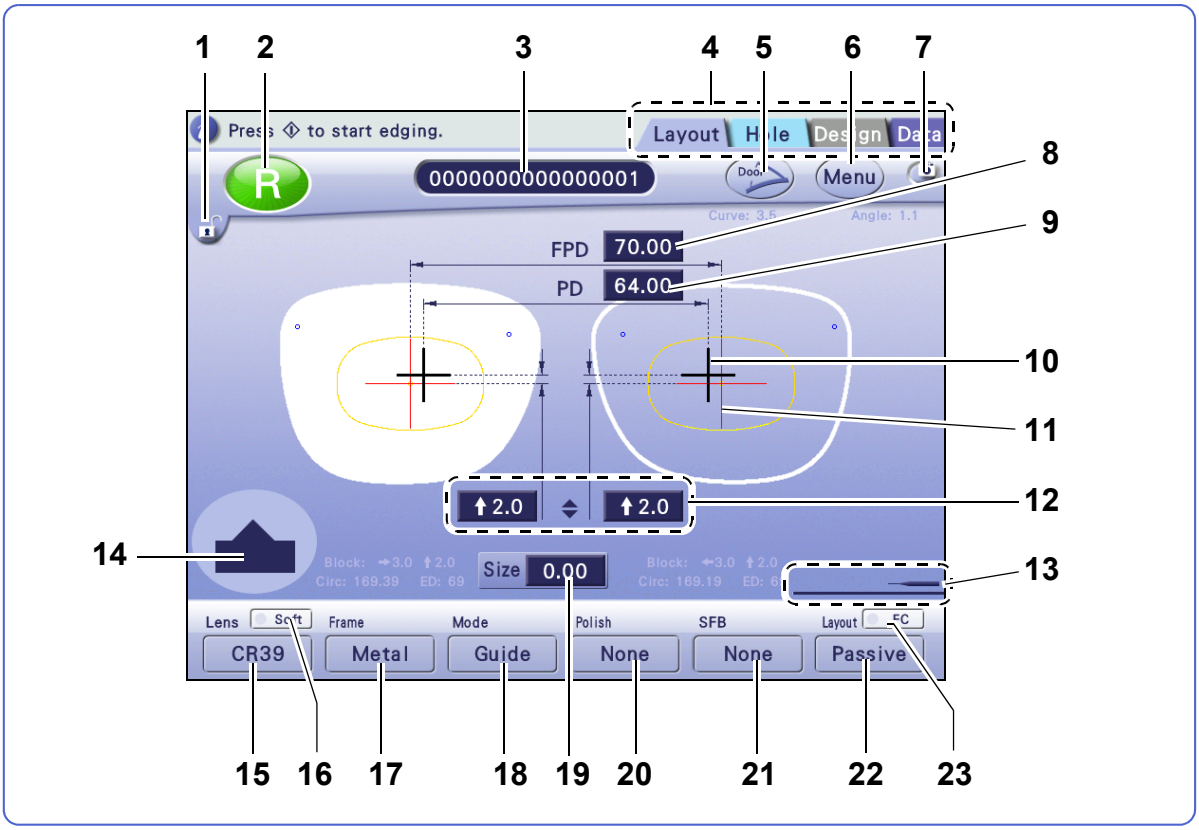
PLB-2R8S	Configuration
a : Roughing wheel for glass lenses b : High base curve finishing wheel c : Finishing wheel d : Polishing wheel e : Roughing wheel for plastic lenses	

2.3 Screen Configuration and Functions

Contents described in this section

◆ Layout screen

This screen is used for entering lens layout data and processing conditions.



1 Layout lock button

Locks out any editing of layout data such as FPD, PD, optical center height, and shape size. Pressing this button again enables editing.

2 R / L [R] / [L] button

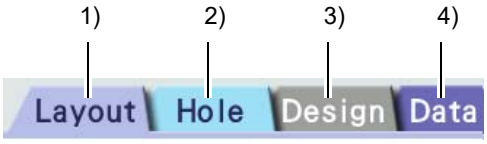
Toggles the shape display between R (green) and L (red).

3 0000000000000000 Keyboard button

This button indicates a shape data name. Pressing the button displays the keyboard screen.

"3.3.3 Loading shape data using keyboard screen" (page 53)

4 Screen change tabs



1) [Layout] tab

Displays the layout screen.

"♦ *Layout screen" (page 30)*

2) [Hole] tab

Displays the hole edit screen.

"♦ *Hole edit screen" (page 37)*

3) [Design] tab

Displays the design screen.

"5 DESIGN EDIT" (page 143)

4) [Data] tab

Displays the data management screen.

"♦ *Data management screen" (page 41)*

5  [Door] button

Opens and closes the processing chamber door.

6  [Menu] button

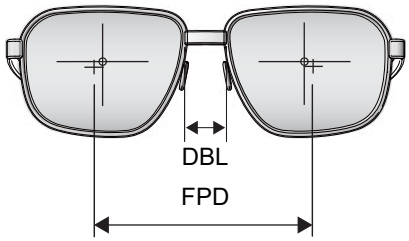
Displays the menu screen.

"6.1.1 Operation on menu screen" (page 173)

7 Initial screen save button

Saves the settings of the currently displayed screen as the initial settings.

8 [FPD]/[DBL] field



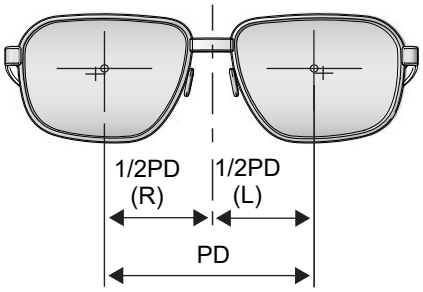
Selects FPD or DBL.

FPD: Sets the frame pupillary distance.

FPD is calculated by the boxing system[*1].

DBL: Sets the distance between the nasal side edges of the right and left shapes.

9 [PD]/[1/2PD] field



Selects PD or 1/2PD.

PD: Sets the pupillary distance.

1/2PD: Sets the monocular pupillary distance.

10 Optical center mark

Indicates the optical center of a lens. In Passive mode, this mark is displayed in black. In Active mode, it is displayed in red.

11 Frame center mark

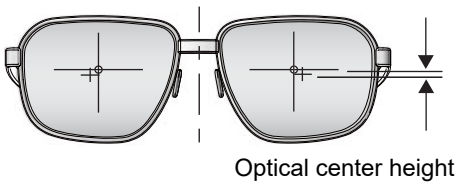
Indicates the center of a lens shape.

*1. The lens center is calculated as the center of a box drawn around the lens shape using its maximum height and width.

12 **Optical center height field**

Sets the distance from the frame center (boxing center) to the optical center.

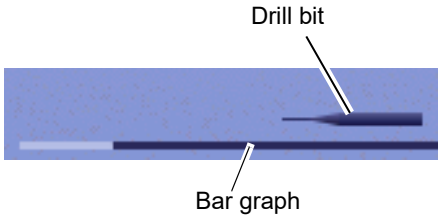
Select , PD , or BT .



13 **Drill count bar graph**

The color of the bar graph is a guide for when to replace the drill bit.

- Less than 80%: Displayed in dark blue
- 80% or more: Displayed in yellow
- Drill count exceeds the set count: Displayed in red



14 **Processing image**

Displays the image of an edge to be processed with the currently set processing conditions.

Press the image with the frame type set to [Metal], [Plastic], or [Optyl] to select the bevel type (Normal, Mini bevel, Hi-curve, or Custom).

15 CR39 **[Lens] button**

Selects the lens material (CR39, Hi-index*1, Polyca., Acrylic, Trivex, Urethane, or Glass).

16 Soft **[Soft] button**

Toggles soft processing between Soft (on) and Soft (off).

17 Metal **[Frame] button**

Selects the frame type (Metal, Plastic, Optyl*2, Two Point, or Nylor).

18 Auto **[Mode] button**

Selects the processing mode (Auto, Guide, Hole, or EX).

19 **[Size] field**

Sets a compensation value for the shape finish size.

20 None **[Polish] button**

Selects the polishing mode (None, Polish, Edge, or SFB).

21 None **[SFB] button**

Selects the safety beveling mode (None, Small, Medium, Large, Special, or Facet).

22 Passive **[Layout] button**

Selects the layout mode (Active, Passive, or Bifocal).

23 FC **[FC] button**

Toggles the frame changing mode between FC (on) and FC (off).

*1. Hi-index lens: Plastic lens with a refractive index of 1.60 or greater

*2. Optyl frame: Frame made of epoxy resin

◆ Tabs displayed after processing simulation or lens processing

24 [Retouch] tab

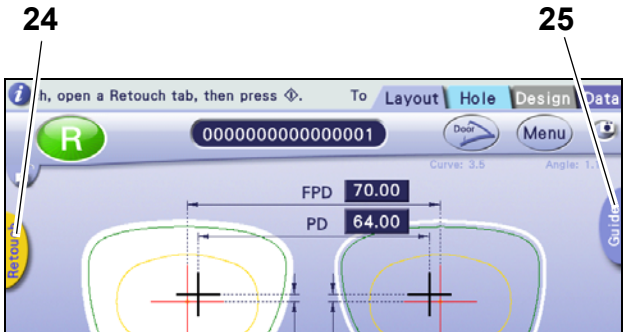
Switches to the retouch screen.

This tab is displayed after lens processing.

25 [Guide] tab

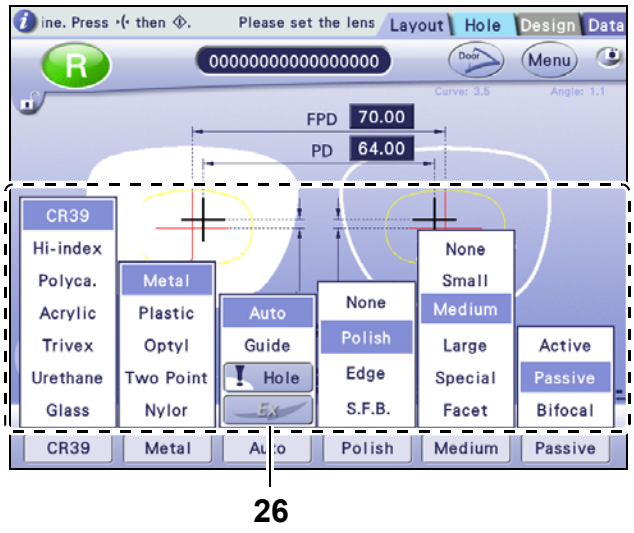
Switches to the simulation screen.

This tab is displayed after processing simulation.



◆ Pop-up menu

26 Pressing CR39 or such button displays a pop-up menu. Press the desired item to select.



◆ Numeric keypad

Pressing the [FPD] field or [PD] field displays the numeric keypad. Entering a value and pressing ↵ confirm the value and close the numeric keypad.

27 Close button

Closes the numeric keypad.

28 Drag handle

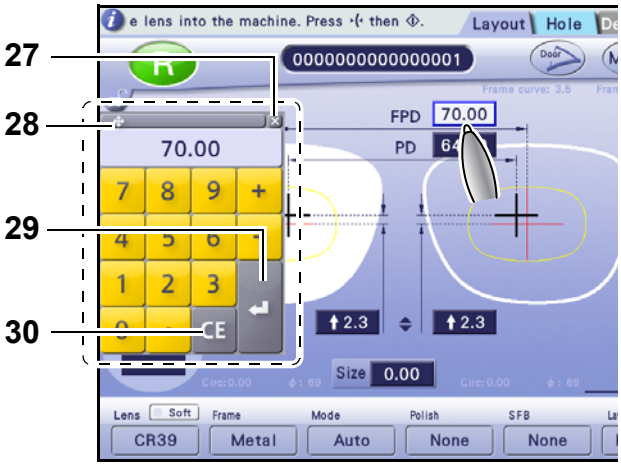
Dragging this handle moves the numeric keypad.

29 ↵ Enter button

Confirms the entered value and closes the numeric keypad.

30 CE [CE] button

Deletes the number most recently entered.

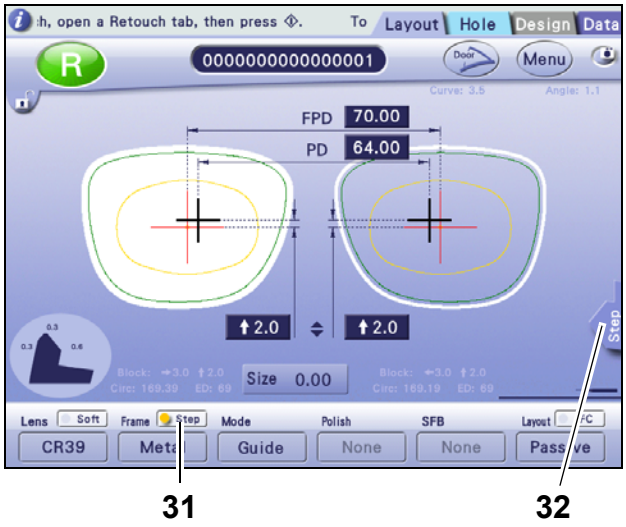


◆ Step beveling

31 Step [Step] button

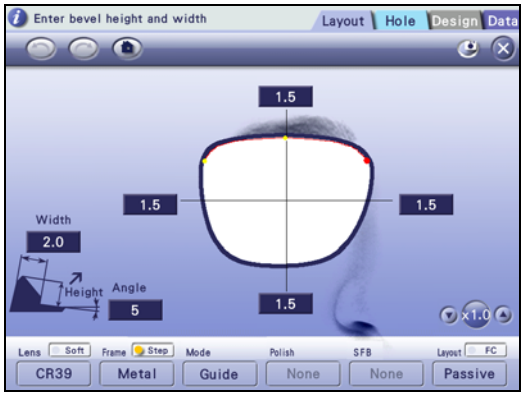
Toggles step beveling between Step (on) and Step (off).

When the frame type is set to [Metal], [Plastic], or [Optyl], pressing the processing image to select [Hi-curve] or [Custom] displays this button.

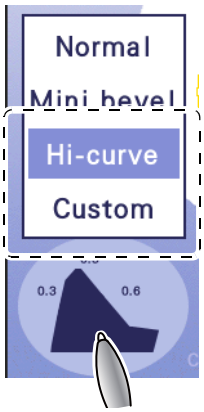


32 [Step] tab

Switches to the step edit screen as shown to the right.



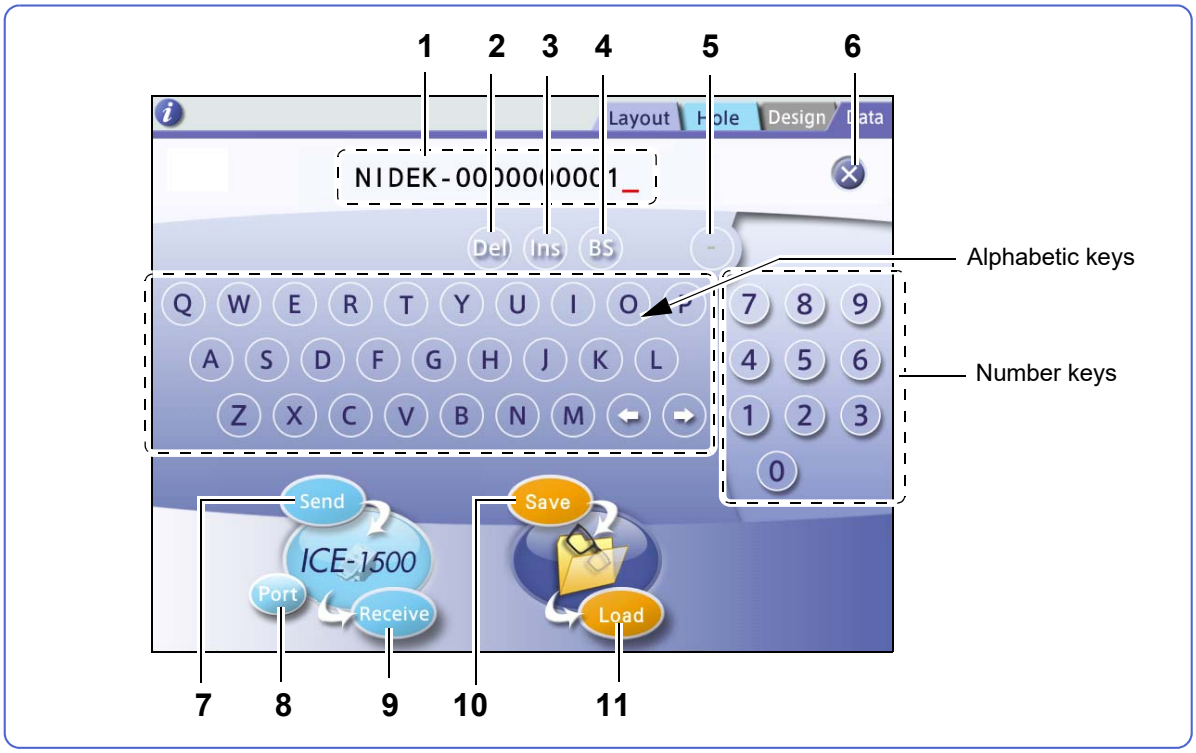
Pressing the processing image to select [Hi-curve] or [Custom] and setting step beveling to Step (on) displays the [Step] tab.



◆ Keyboard screen

Pressing 0000000000000000 on the layout screen displays this screen.

It is used for receiving, sending, and saving shape data.



1 Shape data name field

Displays a shape data name.

2 Del Delete button

Deletes one character above the cursor.

3 Ins Insert button

Toggles between overwriting and inserting a character at the cursor position. While in insert mode, the button is red and cursor appears as a triangle (▲).

4 BS Back Space button

Deletes one character to the left of the cursor.

5 Hyphen input button

6 Close button

Returns to the layout screen.

7 Send [Send] button

Sends shape data with the specified name to the server or blocker.

8 

[Port] button (displayed only when multiple instruments are connected)

Changes the instrument to communicate with.

9 

[Receive] button

Receives shape data from the server or blocker by specifying the shape data name.

10 

[Save] button

Saves the shape data displayed on the screen to the internal memory.

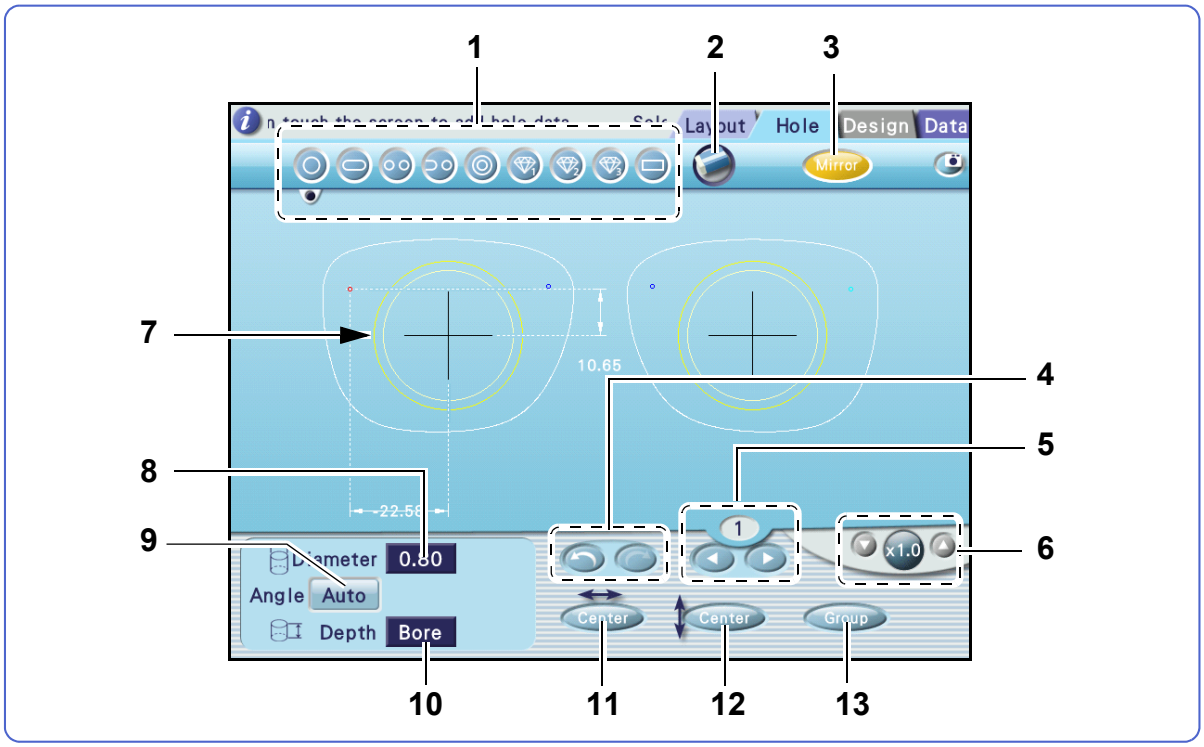
11 

[Load] button

Loads the shape data specified in the shape data name field from the internal memory.

◆ Hole edit screen

Pressing the [Hole] tab on the layout screen displays this screen.



1 Hole type buttons

Select the hole type to be added.

2 Hole delete button

Deletes the currently selected hole (displayed in red). If there is any mirrored hole, it is also deleted.

3 [Mirror] button

Toggles whether to mirror the selected hole to the opposite lens shape.

4 Undo button, Redo button

: Undoes up to five editing operations.

: Redoes up to five editing operations.

5 / Hole select buttons

Select a hole. The number of the selected hole is indicated above the buttons.

: Selects the next hole.

: Selects the previous hole.

6 **/** **Magnification buttons**

Change the display magnification.

[×1.0] → [×1.5] → [×2.0] → [×4.0]

When any magnification other than [×1.0] is selected, touching the screen displays the cursor. Dragging the cursor changes it to , allowing the shape to be moved.

7 **Hole setting invalid area**

Holes cannot be set inside this yellow circle.

8 **[Diameter] field**

Sets the hole diameter with the numeric keypad. For jewel holes 1 to 3, no values are displayed.

9 Auto **[Angle] button**

Selects the hole angle (Auto, Angle, X-Y, X Auto, or Curve).

10 **[Depth] field**

Sets the hole depth with the numeric keypad. For a through hole, enter “0.0”.

For jewel holes 1 to 3, no values are displayed.

11 Center **Horizontal coordinate button**

Selects the horizontal reference position of the hole (Center, B-Edge, or H-Edge).

12 Center **Vertical coordinate button**

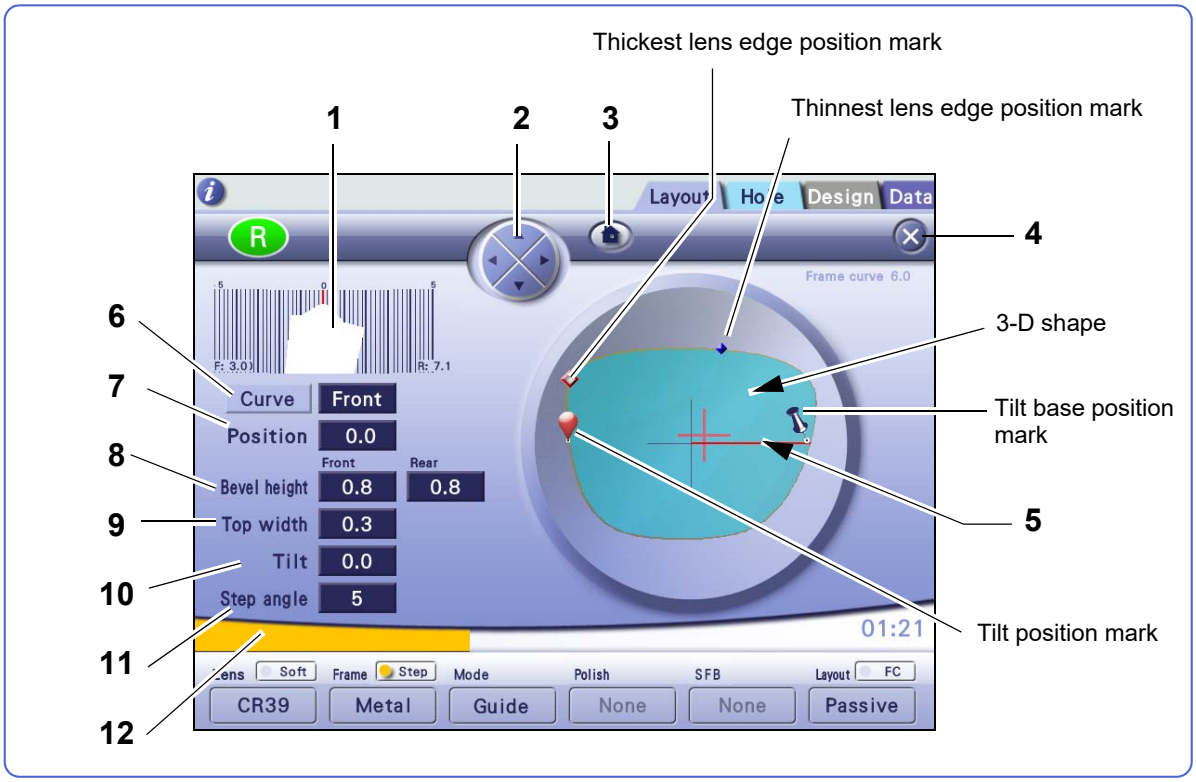
Selects the vertical reference position of the hole (Center or B-Edge).

13 Group **[Group] button**

After pressing Group, dragging around two holes groups them (displayed in green). When the selected holes are grouped, the button appears as Group (displayed in white).

◆ Simulation screen

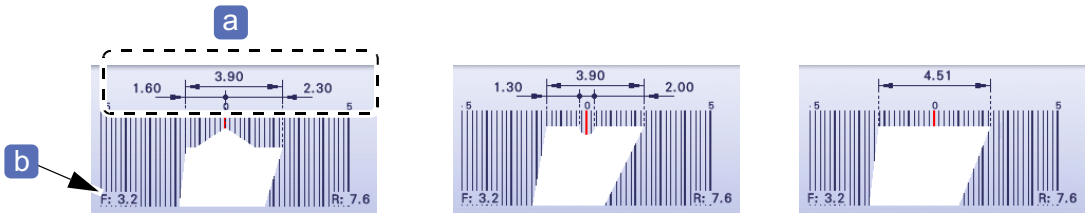
When the processing mode is set to [Guide], the simulation screen is displayed after lens shape measurement. Bevel position or such can be checked or changed manually.



1 Sectional view simulation area

Shows the lens edge simulation image at the position of the sectional view position line.

Except for high base curve beveling, custom beveling, and step beveling, lens edge thickness, bevel position, and groove position are calculated from lens measurement data, and they are numerically displayed a . Values at the left and right bottoms b are the curve values of the front and rear surfaces of the lens.



Beveling　　Grooving　　Flat edging

2 3-D shape control

Turns the 3-D shape image in the desired direction. The image turns in the direction of ▲.

3 Initialize button

Resets the shape image to its initial state.

4 **Close button**

Returns to the layout screen.

5 **Sectional view position line**

Indicates the position of the edge that is displayed in the sectional view simulation area.

6 Curve **[Curve] button**

Selects the curve (Auto, Curve, Front, Rear, Ratio, or Frame).

7 **[Position] field**

Adjusts the beveling or grooving position with the numeric keypad.

8 **[Bevel height] field**

Adjusts the front bevel height or rear bevel height for high base curve beveling or custom beveling with the numeric keypad.

9 **[Top width] field**

Adjusts the bevel apex width for high base curve beveling or custom beveling with the numeric keypad.

10 **[Tilt] field**

Adjusts the tilt amount of the beveling or grooving route with the numeric keypad.

11 **[Step angle] field**

Adjusts the step angle for step beveling with the numeric keypad.

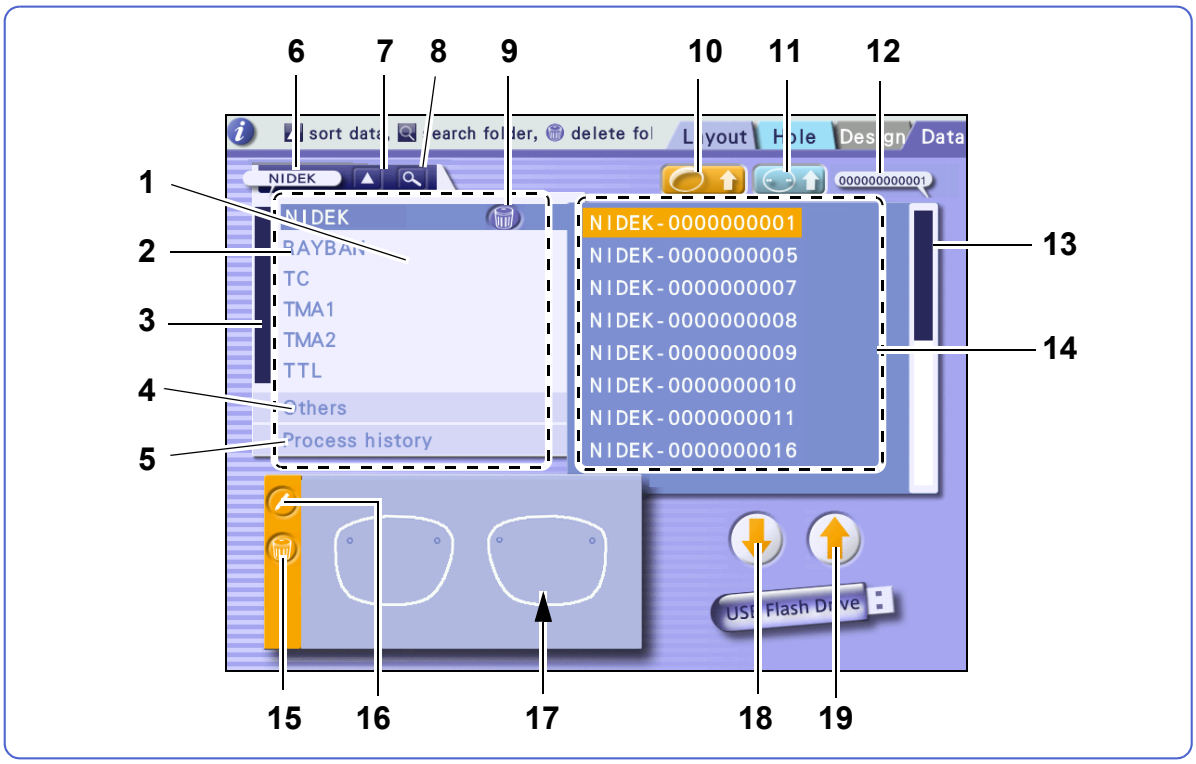
Angle

12 **Estimated processing time**

Displays an estimated processing time. It is accompanied with audio explanation.

◆ Data management screen

Pressing the [Data] tab on the layout screen displays this screen.



1 Folder list

Lists the brand folders, Others folder, and Process history folder.

2 Brand folder

When shape data whose name includes a brand name is saved, brand folder names are listed here. Selecting the corresponding brand folder displays shape data names including the brand name in the shape data list.

3 Scroll bar (for folder list)

Selects a folder by dragging the slider or tapping the white area to scroll the list by one page. While the list is scrolled, the selected folder name appears in the pop-up display.

4 Others folder

Shape data whose name does not include a brand name is saved to the Others folder. Selecting the Others folder displays shape data names in the shape data list.

5 Process history folder

Each time a lens is processed, its shape data is automatically saved to this folder. Selecting the Process history folder displays dates and times when lenses were processed instead of shape data names in the shape data list.

6 Pop-up display (for folder list)

While the list is scrolled, the selected folder name appears here.

7 Ascent/descent button

Sorts the folders in the ascending order or descending order.

8 Folder search button

Searches for a folder name entered on the keyboard screen. If the corresponding folder does not exist, a beep sounds.

9 Folder delete button

Deletes the selected folder and all data in the folder. However, the Others folder and Process history folder cannot be deleted.

10 Data load button

Loads the selected shape data to the layout screen.

11 Hole import button

Imports hole information of the selected data to the shape displayed on the layout screen.

12 Pop-up display (for shape data list)

While the list is scrolled, the selected shape data name appears here.

13 Scroll bar (for shape data list)

Selects shape data by dragging the slider or tapping the white area to scroll the list by one page. While the list is scrolled, the selected shape data name appears in the pop-up display.

14 Shape data list

Lists shape data names.

15 Data delete button

Deletes the selected data.

16 Data name change button

Selects data and changes its name on the keyboard screen.

17 Selected shape image display

18 Backup to USB button (displayed only when a USB flash drive is connected)

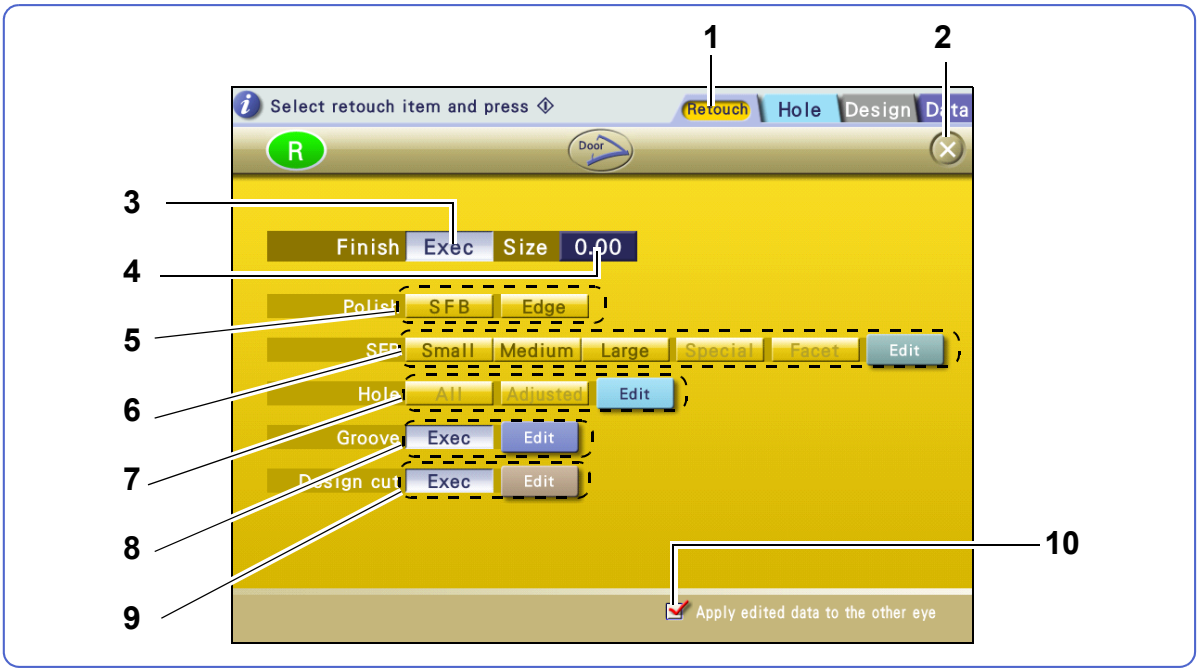
Saves all data except for the Process history data to the USB flash drive.

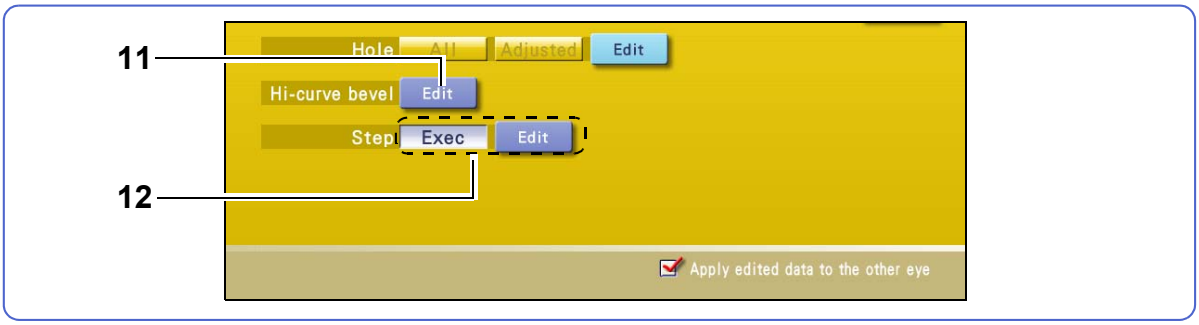
19 Restore from USB button (displayed only when a USB flash drive is connected)

Displays “Restore data list” of the backup data saved in the USB flash drive (option).

◆ Retouch screen

This screen is for retouch settings. Pressing [Retouch] on the layout screen after lens processing is complete displays the screen.





1 [Retouch] tab

Edits retouch settings.

2 button

Closes the retouch screen.

3 [Finish] button

Toggles between [Exec] and [None] for retouching of periphery.

4 [Size] field

Sets the lens finish size with the numeric keypad.

5 [Polish] buttons

Select whether to retouch the polished safety beveled edge or polished edge.

6 [SFB] buttons

Select whether to retouch the safety beveled edge. Pressing [Edit] allows faceting data to be edited.

7 [Hole] buttons

Select [All] (all holes) or [Adjusted] (holes adjusted after processing) for hole(s) to be retouched. Pressing [Edit] allows the hole position, diameter, and such to be edited.

8 [Groove] buttons

Toggle between [Exec] and [None] for groove retouching. Pressing [Edit] allows grooving data to be edited.

9 [Design cut] buttons

Toggle between [Exec] and [None] for design cut retouching. Pressing [Edit] allows design cut data to be edited.

10 Check box

When the opposite lens has not been processed and the box is checked, the settings adjusted for retouching are applied to the first processing of the opposite lens.

11 [Hi-curve bevel] button

Displayed after high base curve beveling. Pressing [Edit] allows high base curve beveling data to be edited.

- [Custom bevel] button

  Displayed after custom beveling. Pressing [Edit] allows custom beveling data to be edited.

12 [Step] buttons

Toggle between [Exec] and [None] for step bevel retouching for the high base curve beveled or custom beveled edge. Step beveling can be added when the lens is retouched even if it was not performed during the first processing.

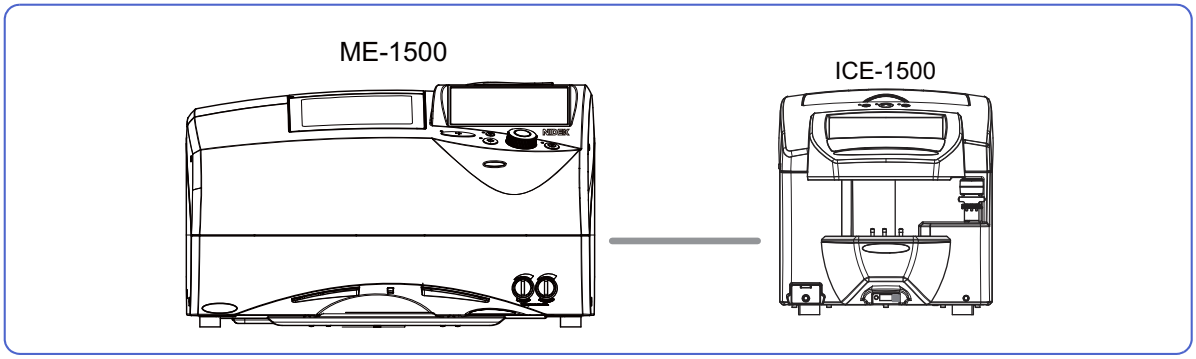
3 OPERATING PROCEDURE

Contents described in this chapter

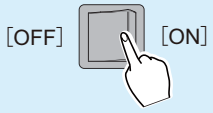
- Operations for loading, saving, receiving, and sending data differ depending on the system.
- Type PLB-2R8S is generally the basis for the explanations in this chapter.
- For design and step edits, see Chapter 5.

3.1 Operation Flow

The following are operation flows when the ME-1500 alone is used and when the ICE-1500 is connected.



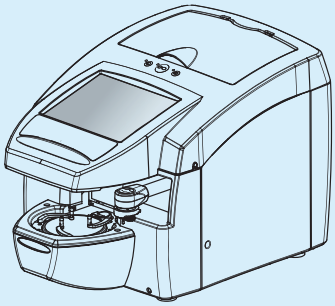
Loading shape data from the internal memory (ME-1500 alone)



"3.2.1 Startup" (page 48)

"3.3.2 Loading shape data from data management screen" (page 51)

Loading shape data from the ICE-1500

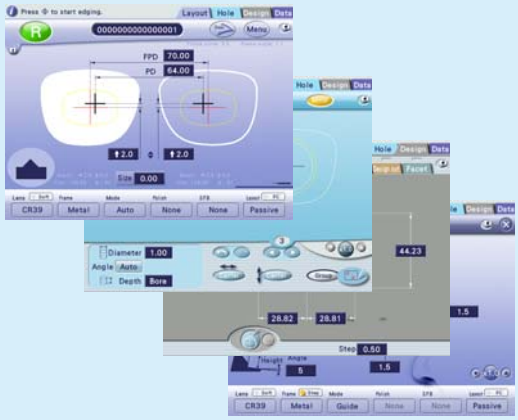


Edit shape data and block a lens with the ICE-1500.

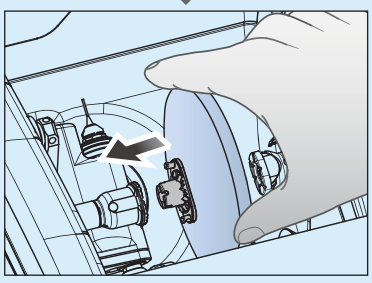
"3.3.6 Loading shape data from ICE-1500" (page 56)

"4.1 Entering Processing Conditions" (page 86)

"4.2 Entering Layout Data" (page 91)

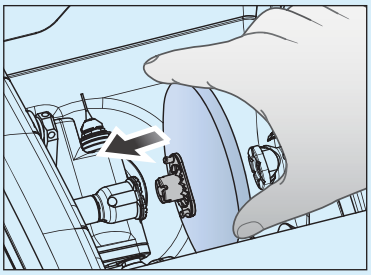


- *"4.3 Beveling" (page 98)*
- *"4.4 EX Lens Processing (Beveling)" (page 115)*
- *"4.5 Tilt Function" (page 116)*
- *"4.6 Flat Edging" (page 119)*
- *"4.7 Grooving" (page 120)*
- *"4.8 EX Lens Processing (Grooving)" (page 125)*
- *"4.9 Drilling" (page 126)*
- *"5.3 Lens Design" (page 151)*
- *"5.4 Step Beveling" (page 164)*



- *"3.6 Blocking Lenses with CE-9" (page 75)*
- *"3.7 Setting and Removing Lenses" (page 80)*

- *"4.3.2 Guide beveling" (page 100)*
- *"4.7.2 Guide grooving" (page 121)*
- *"4.10 Size Checking and Retouching" (page 137)*



"3.7 Setting and Removing Lenses" (page 80)

3.2 Startup and Shutdown

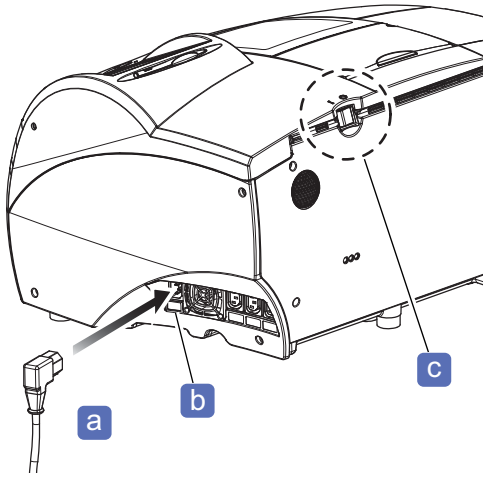
Contents described in this section

⚠ CAUTION

- Perform the pre-use check using *"♦ Pre-use checklist" (page 246)* every time. It is recommended to fill out the checklist.
  Failure to do so may result in instrument malfunction or improper measurement.
- If any abnormality or error message appears at instrument startup, see *"7.1 Troubleshooting" (page 221)*. If the abnormality is not resolved, contact Nidek or your authorized distributor.

3.2.1 Startup

1 Connect the power cord a to the power inlet b.



2 Confirm that the power switch c is turned off (○), then connect the power cord to a power outlet.

3 Turn on (|) the power switches of the instruments connected to the ME-1500.

4 Check the items listed in "Before turning on the instrument" in the pre-use checklist.

"♦ Pre-use checklist" (page 246)

5 Turn on (|) the power switch of the ME-1500.

→Startup screen

6 Check the items listed below "After turning on power" in the pre-use checklist.

- Initialization starts.
- Confirm that no error message appears.

→Layout screen

3.2.2 Shutdown

⚠ CAUTION

Perform the after-use check using the after-use checklist every time. It is recommended to fill out the checklist.

Failure to do so may result in injury or instrument malfunction.

"♦ *After-use checklist" (page 247)*

1 Turn off (◯) the power switch.

After turning off power, wait for at least 10 seconds before turning on power again. The instrument may not operate properly.

2 Clean the instrument.

When the instrument cover, display, or lens table is soiled, wipe it with a soft cloth soaked in a neutral detergent diluted with water.

"7.3 Cleaning" (page 225)

3 Perform the after-use check using the after-use checklist.

"♦ *After-use checklist" (page 247)*

3.3 Data Loading, Saving, Receiving, and Sending

Contents described in this section

3.3.1 Shape data in internal memory

Shapes used repeatedly can be saved and loaded to/from the internal memory as registered shapes.

Trace data, processing conditions, and layout information are saved.

◆ Folder and shape data

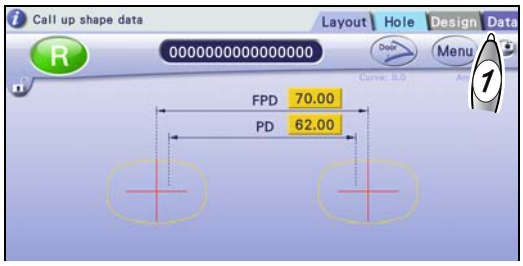
If shape data is given a brand name, the data is saved to the folder with the specified brand name, in order to help with data management.

Folder	Data name / storage capacity
Brand	• Specify the data name with a maximum of 16 alphanumeric characters. Include a brand name and hyphen (-). Specify the brand name with a maximum of 12 alphanumeric characters. Include at least one alphabet letter. e.g., NIDEK-0000000001 • If the number of the entered characters is less than 16, leading zeros are added to the number part. • When a folder with the specified brand name does not exist, it is automatically created. • Data storage capacity A maximum of 500 brand folders with up to 500 shape data items per folder can be saved. * The maximum number of data items depends on each data size.
Others	• Specify the data name with a maximum of 16 alphanumeric characters. Do not include a hyphen (-). e.g., ABC0000000000001 • Data storage capacity A maximum of 500 shape data items can be stored. * The maximum number of data items depends on each data size.

3.3.2 Loading shape data from data management screen

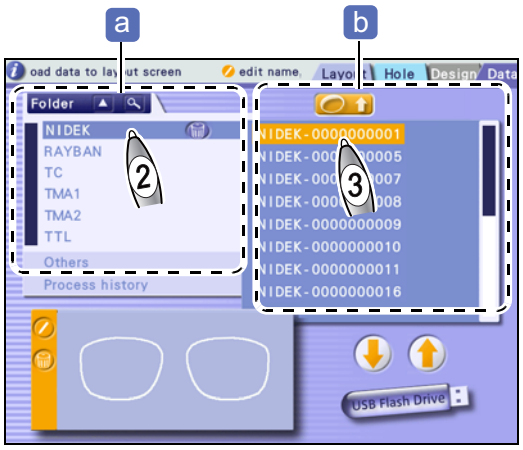
1 [Data]

→Data management screen



2 Select a brand folder or Others folder from the folder list a.

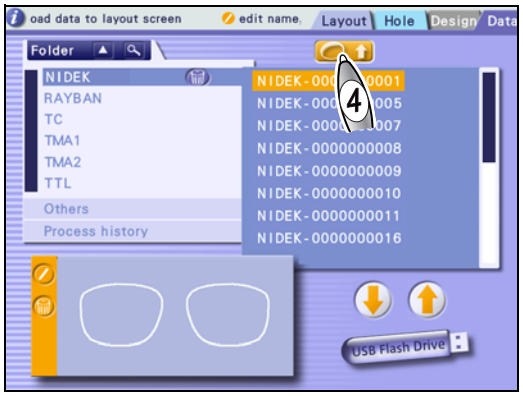
3 Select shape data from the shape data list b.



4

→Layout screen

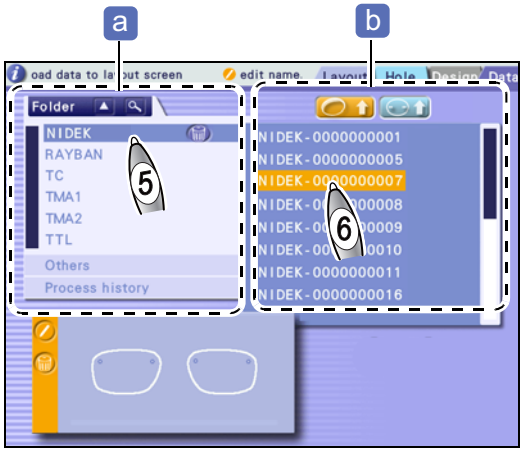
The shape data is loaded.



- When loading hole information

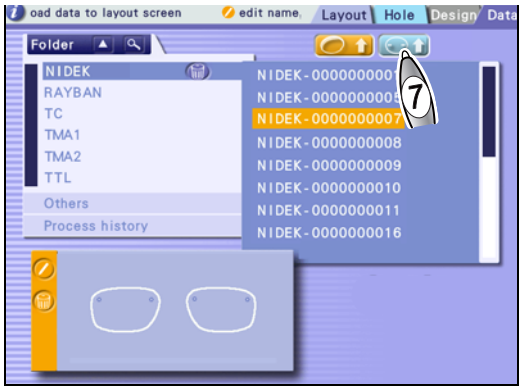
5 Select a brand folder or Others folder from the folder list a.

6 Select shape data including the desired hole information from the shape data list b.

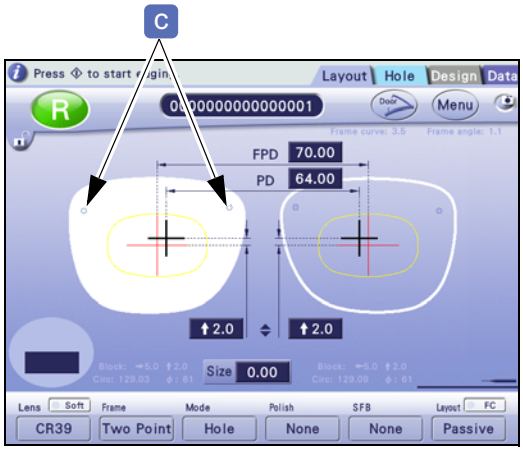


7 

→Layout screen



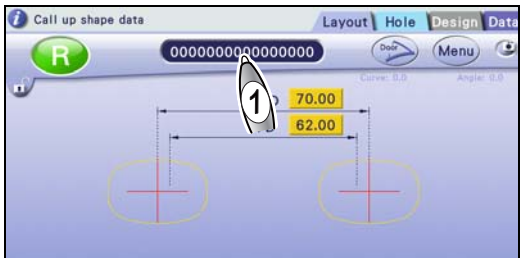
Only the hole information C is loaded and added to the shape data loaded in Step 4.



3.3.3 Loading shape data using keyboard screen

1 0000000000000000

→Keyboard screen



2 Enter a shape data name with the keyboard.

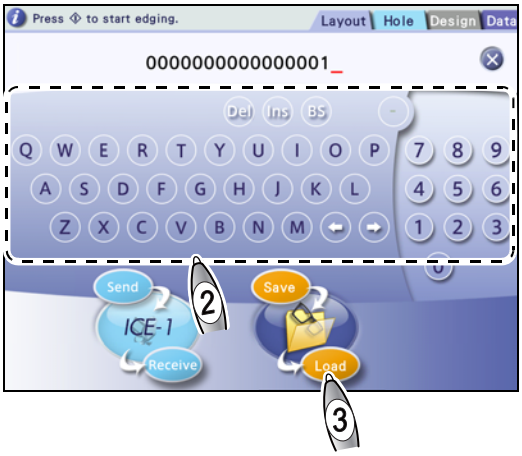
- When using a barcode scanner

"3.3.8 Loading shape data with barcode scanner" (page 58)

3 Load

→Layout screen

The shape data is loaded.



◆ When not using the function to specify shape data by number

When the ME-1500 is connected only with an intelligent blocker or a server computer, setting the "Specify process data by number" parameter on the General-2 screen to [Not specify] displays the screen as shown below.

B-02*" Specify process data by number" (page 176)*

Pressing Data loads shape data from the intelligent blocker or server computer.

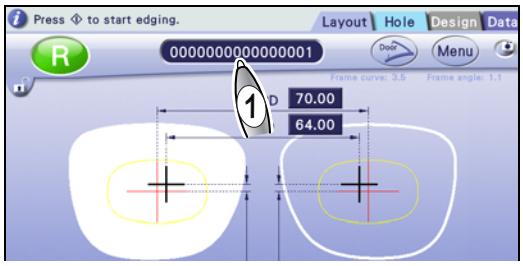
[Data] button
Shape data is loaded as "0000000000000000".

[Return] button
This button is displayed when the received data is edited.
The information of the layout screen is sent to the intelligent blocker or server computer, or saved to the memory.

3.3.4 Saving shape data to internal memory

1 0000000000000000

→Keyboard screen

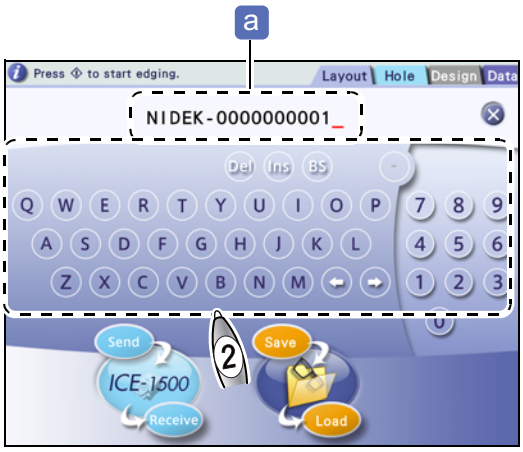


2 Enter a shape data name.

Specify a shape data name a with 16 alphanumeric characters including a brand name and hyphen.

If the number of the entered characters is less than 16, leading zeros are added to the number part. For example, if “NIDEK-1234” is entered, it is saved as “NIDEK-0000001234”.

Entry example	Shape data name
NIDEK-1	NIDEK-0000000001
A-1234	A-00000000001234



3 Save

The shape data is saved.

- When the folder with the specified brand name exists, the shape data is saved there.
- When the folder with the specified brand name does not exist, the folder is automatically created and the shape data is saved there.
- Shape data with no brand name is saved to the Others folder.

Entry example	Shape data name
A1234	00000000000A1234
0001	0000000000000001

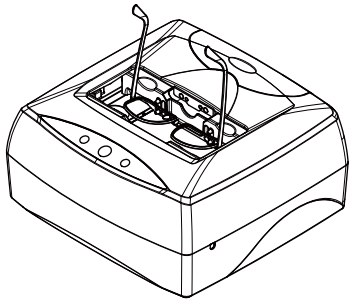
3.3.5 Loading shape data from LT-980

This section describes the procedure for loading shape data from the LT-980 (tracer) connected to the ME-1500.

◆ When only a tracer is connected

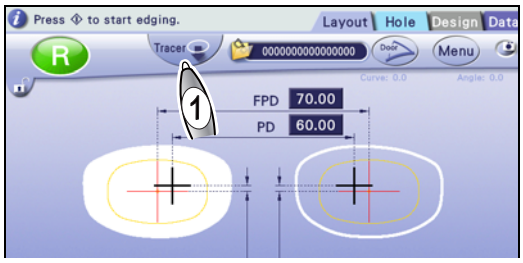
❖ Trace a frame or a pattern with the LT-980.

For the operating procedure, refer to the operator's manual for the LT-980.



1 Tracer

→ The shape data is loaded.



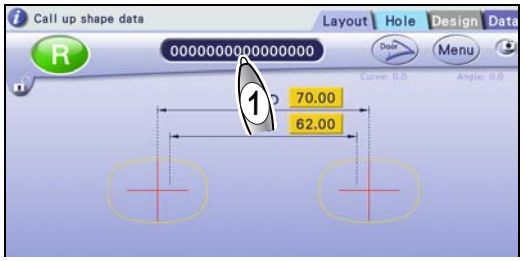
2 Edit the shape data.

◆ When a tracer and other instructions are connected

❖ Trace a frame or a pattern with the LT-980.

1 0000000000000000

→ Keyboard screen



2 Port

3 Tracer

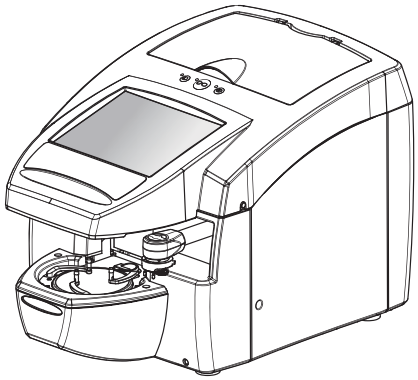
The shape data is loaded.

4 Edit the shape data.

3.3.6 Loading shape data from ICE-1500

This section describes the procedure for loading shape data from the ICE-1500 connected to the ME-1500.

- Operating the ICE-1500

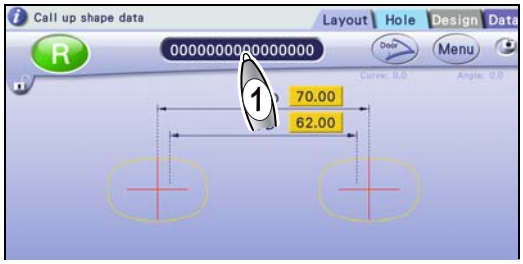


1) Trace a frame or a pattern with the tracer equipped with the ICE-1500.
2) Edit the shape data.
3) Block the right and left lenses.
4) Store the blocked lenses in a tray or such marked with the JOB code.

❖ For the operating procedure, refer to the operator's manual for the ICE-1500.

1  0000000000000000

→ Keyboard screen



2 Enter a shape data name with the keyboard.

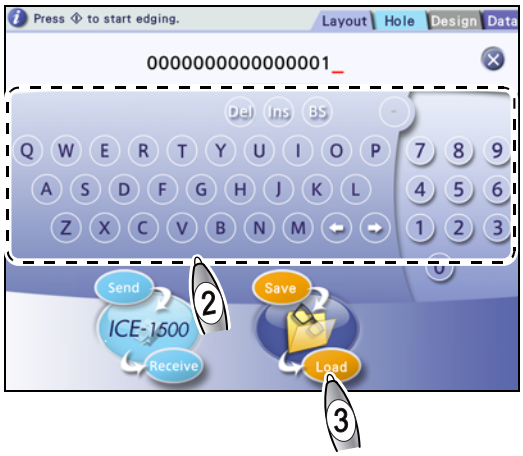
- When using a barcode scanner

"3.3.8 Loading shape data with barcode scanner" (page 58)

3  Load

→ Layout screen

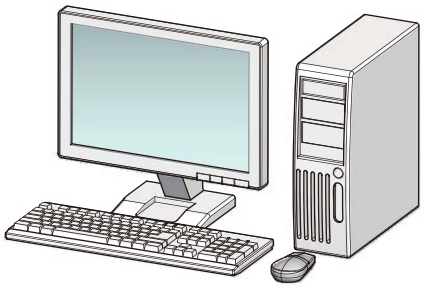
The shape data is loaded.



4 Edit the shape data as necessary.

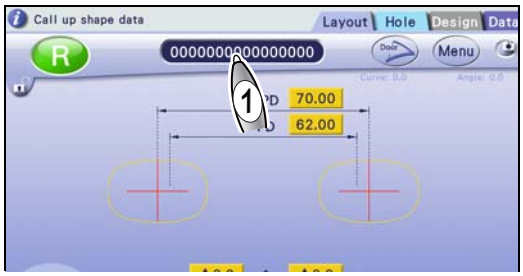
3.3.7 Receiving shape data from server computer

This section describes the procedure for receiving shape data from the server computer connected to the ME-1500.



1 0000000000000000

→Keyboard screen



2 Enter a shape data name with the keyboard.

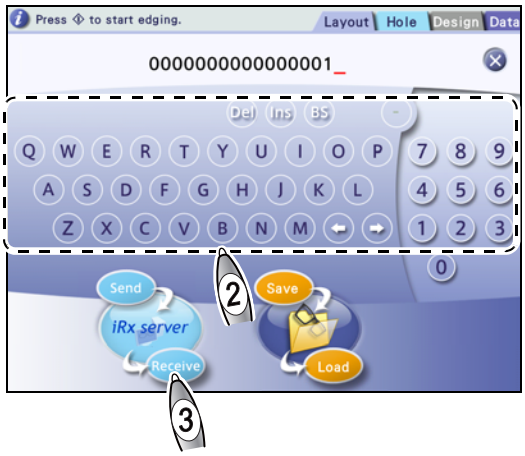
- When using a barcode scanner

"3.3.8 Loading shape data with barcode scanner" (page 58)

3 Receive

→Layout screen

The shape data is loaded.



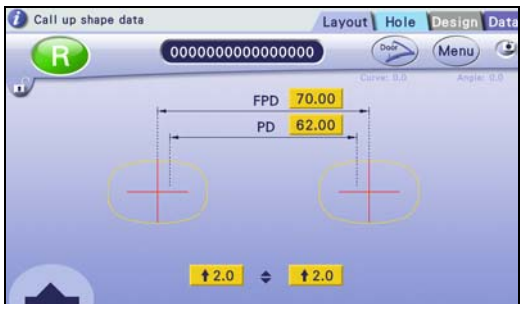
4 Edit the shape data as necessary.

3.3.8 Loading shape data with barcode scanner

This section describes the procedure for loading shape data with the barcode scanner (option) connected to the ME-1500.

1 Display the layout screen or keyboard screen.

❖ Barcodes can be read with the barcode scanner with the keyboard screen displayed.

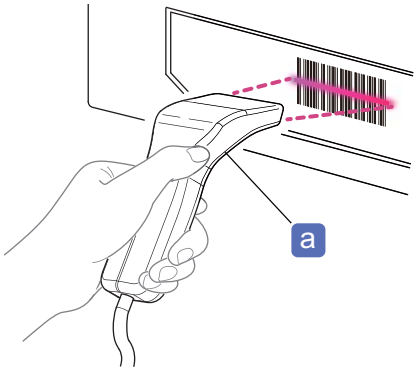


2 Read the barcode with the barcode scanner a .

When reading is complete, a beep sounds.

➔Keyboard screen

The shape data name is displayed in the shape data name field b .



3 Load or save the shape data.

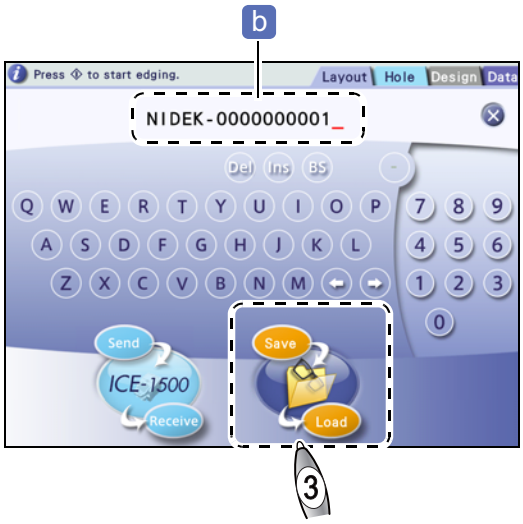
- Load: Load

  The shape data is loaded to the layout screen.

- Save: Save

  The shape data is saved to the internal memory.

4 Edit the shape data as necessary.

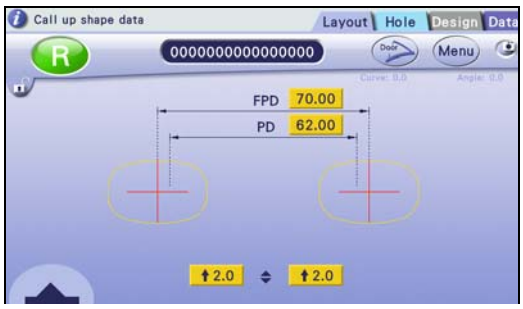


3.3.9 Loading shape data with internal barcode scanner

This section describes the procedure for loading shape data with the internal barcode scanner (option) equipped with the ME-1500.

1 Display the layout screen or keyboard screen.

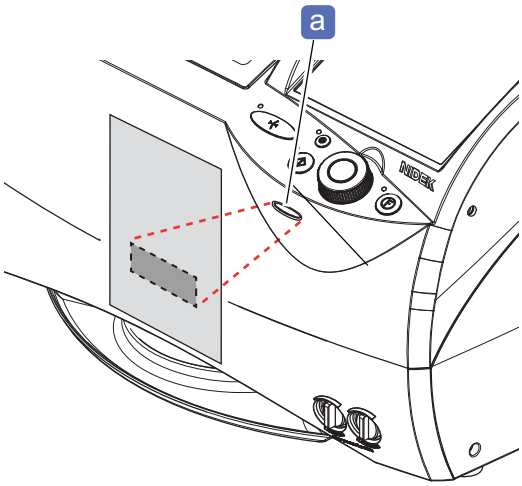
❖ Barcodes can be read with the internal barcode scanner with the keyboard screen displayed.



2 Hold the barcode close to the internal barcode scanner a .

When reading is complete, a beep sounds.

The shape data name is displayed in the shape data name field b .



3 Load or save the shape data.

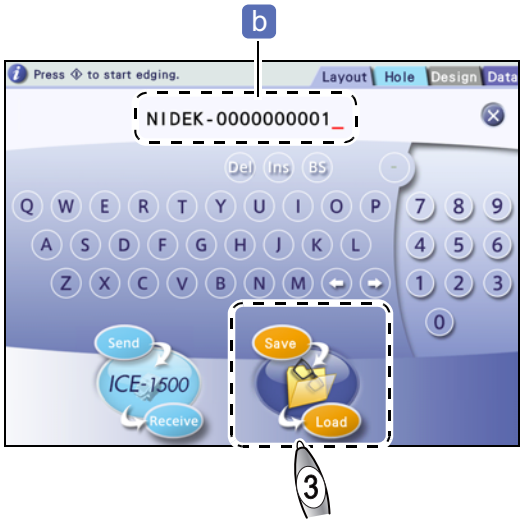
- Load: Load

  The shape data is loaded to the layout screen.

- Save: Save

  The shape data is saved to the internal memory.

4 Edit the shape data as necessary.



3.4 Shape Data Management

Contents described in this section

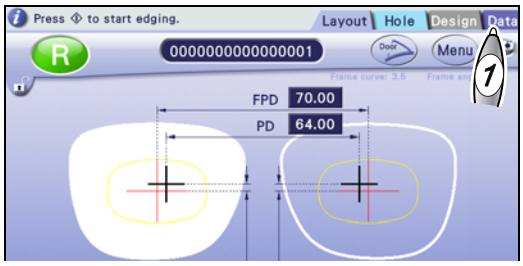
3.4.1 Deleting brand folder or shape data

- Once a brand folder or shape data is deleted, it cannot be restored.
- If the free space of the internal memory is insufficient, data cannot be saved. Delete unnecessary data as much as possible. Also, as the volume of saved data increases, it takes longer to save or load data.

◆ Deleting brand folder

1 [Data]

→Data management screen



2 Select the brand folder to be deleted from the folder list.

3

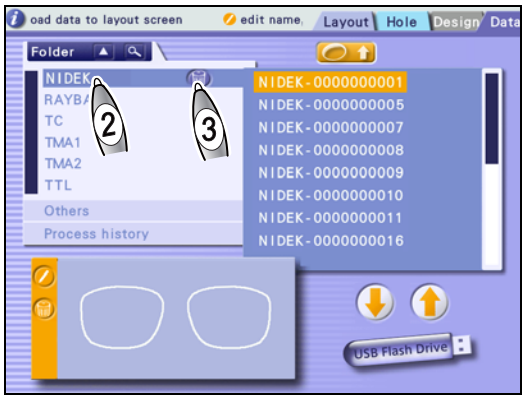
The delete confirmation message appears.

- Yes : Delete
- No : Cancel

The delete confirmation message appears again.

- Yes : Delete

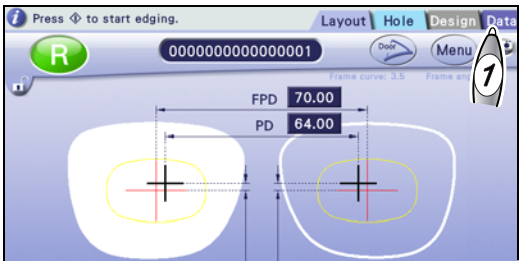
  The brand folder and all shape data are deleted.
- No : Cancel



◆ Deleting shape data

1 [Data]

→Data management screen



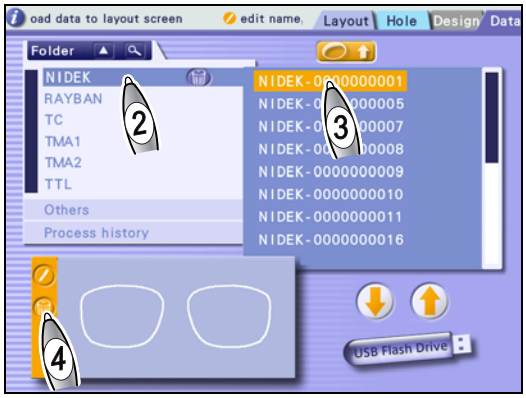
2 Select the brand folder containing the shape data to be deleted from the folder list.

3 Select the shape data to be deleted.

4

The delete confirmation message appears.

- Yes : Delete
- No : Cancel



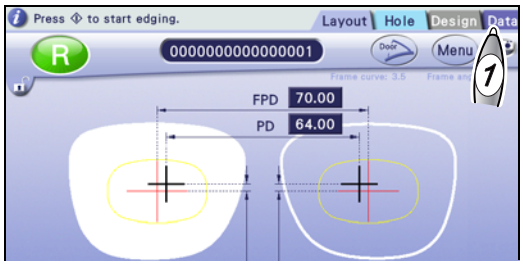
3

3.4.2 Changing shape data name

- If the brand name included in the shape data name is changed, the data is automatically transferred to the folder with the corresponding brand name. If the corresponding folder does not exist, it is automatically created.
- Folder names cannot be changed.

1 [Data]

→Data management screen

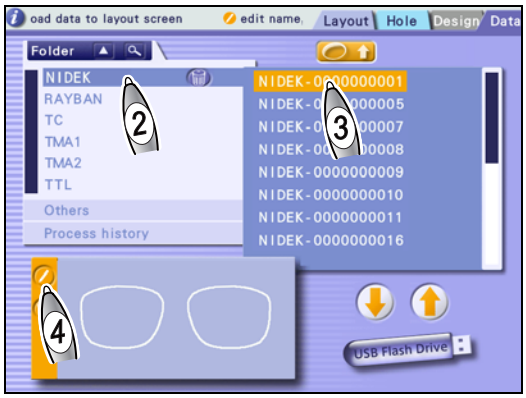


2 Select the brand folder containing the shape data whose name is to be changed from the folder list.

3 Select the shape data whose name is to be changed.

4

→Keyboard screen

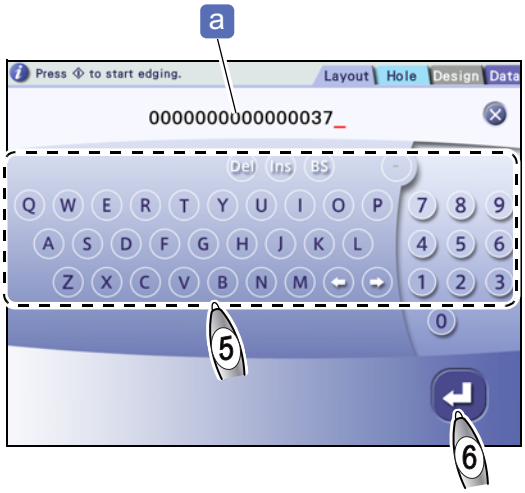


5 Enter a new shape data name.

It is displayed in the shape data name field a.

6

The new shape data name is confirmed. The data management screen is displayed again.



3.4.3 Saving Process history data to internal memory

Shape data, processing conditions, and layout information are saved as the Process history data. When processing is complete, its data is automatically saved to the Process history folder.

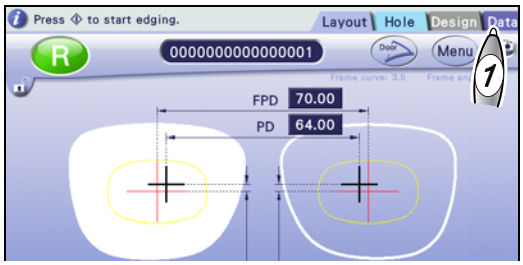
It is possible to select data from the Process history folder and save it to the internal memory. In the shape data list, dates and times when lenses were processed are displayed instead of shape data names.

A maximum of 100 data items can be saved. If the number of the data items exceeds 100, the oldest data is overwritten by new data.

> The Process history data cannot be loaded directly to the layout screen. To load it, it needs to be saved to the internal memory.

1 [Data]

→Data management screen

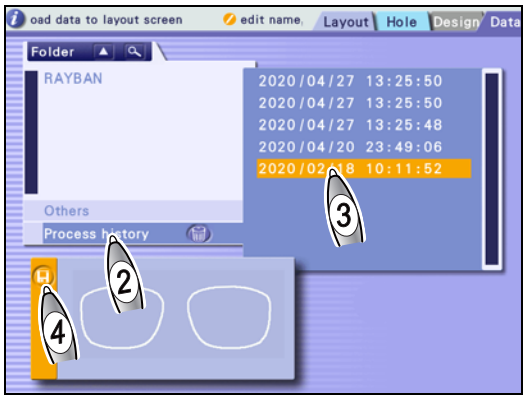


2 Select the Process history folder.

3 Select the Process history data whose name is to be changed.

4

→Keyboard screen

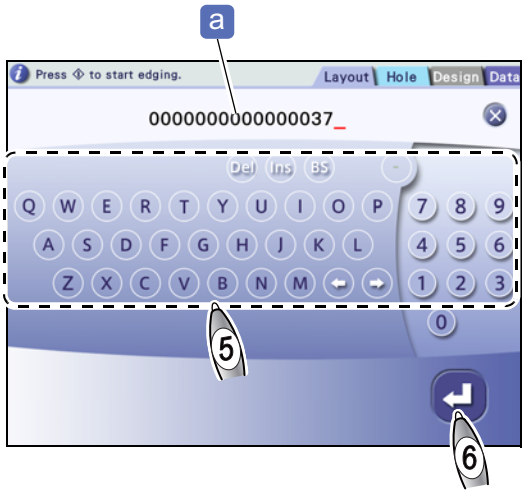


5 Enter a new shape data name.

It is displayed in the shape data name field a.

6

The new shape data name is confirmed. The data management screen is displayed again.



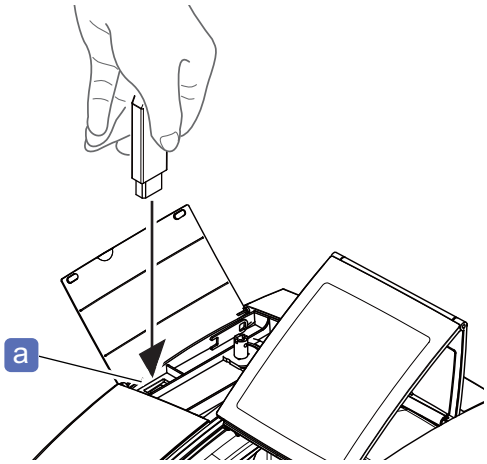
3.4.4 Backing up data to USB flash drive

⚠ CAUTION

- Use the USB flash drive specified by Nidek.
- When connecting or disconnecting the USB flash drive, turn off the instrument, and do not touch the terminal area directly by hand. Also, make sure that the terminal area does not contact any metal objects.
- Confirm that the USB flash drive is not write-protected. Orient the USB flash drive properly and fully insert it into the USB port.
- Do not disconnect the USB flash drive during data backup.
  Nidek is not responsible for any loss or damage to data due to negligence of backup.
- All data saved in the internal memory other than the Process history data is backed up. Backup of individually selected data is not possible.

1 Open the cover of the accessory tray.

2 With the instrument turned off, check the orientation of the USB flash drive and insert it into the USB port a.



3 Turn on the power switch.

4 [Data]

→Data management screen

5

→ Confirmation message

- Yes : Back up
  All data saved in the internal memory other than Process history data is backed up.
- No : Cancel

6 When backup is complete, turn off the power switch of the instrument.

7 Disconnect the USB flash drive.

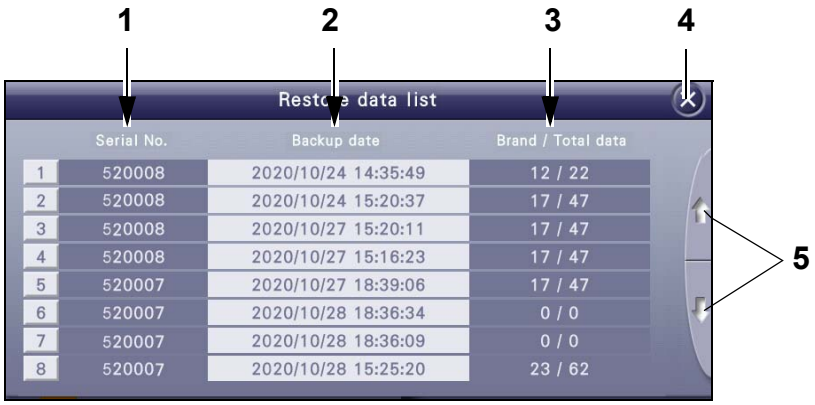
3.4.5 Restoring data from USB flash drive

⚠ CAUTION

- When connecting or disconnecting the USB flash drive (option), turn off the instrument and do not touch the terminal area directly by hand. Also, make sure that the terminal area does not contact any metal objects.
- Pressing the Restore all data button on the restore data screen replaces all data saved in the instrument with the data in the USB flash drive. Be sure to back up all data in the instrument to another USB flash drive before restoration. However, when a folder or data is individually selected and restored, the other data remains in the instrument.
  Nidek is not responsible for any data loss.
- Only data backed up from this instrument can be restored. Data from other instruments or data changed by the customer may cause a malfunction. Do not restore such data.

● Restore data list (when USB flash drive is connected)

Pressing the [Restore from USB] button on the data management screen and [Yes] displays this list.



1 Serial No. field

Displays the serial numbers of the instruments whose data is backed up in ascending order. However, if the serial number of the currently used instrument exists, it is displayed at the top.

2 Backup date (descending order)

3 Brand / Total data

Displays the number of brand folders and shape data items.

4 Close button

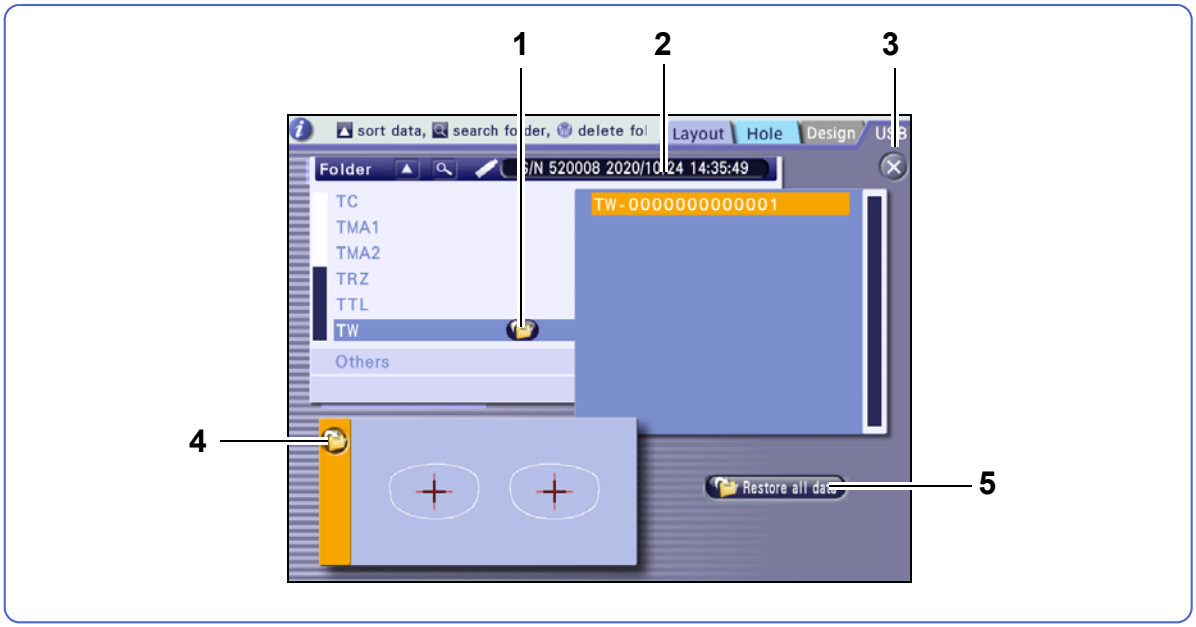
Displays the data management screen.

5 Scroll buttons

Displayed when the number of data items exceeds eight.

◆ Data restore screen

Selecting data from “Restore data list” displays this screen (when the USB flash drive is connected).



1 Folder restore button

Displays the message confirming whether to restore the selected folder data in the USB flash drive. Pressing [Yes] starts restoration.

2 Serial No. and backup date indication

Shows the serial number, and backup date and time.

3 Close button

Returns to the data management screen.

4 Data restore button

Displays the message confirming whether to restore the selected shape data in the USB flash drive. Pressing [Yes] starts restoration.

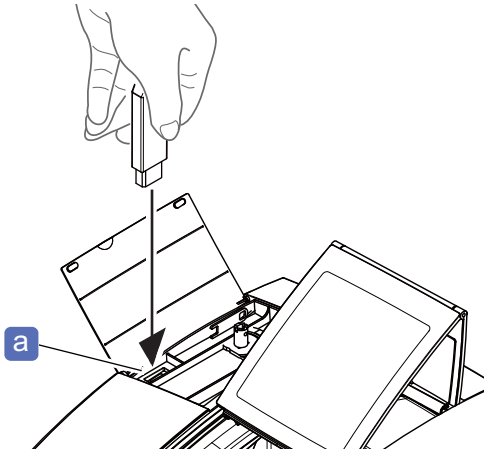
5 [Restore all data] button

Replaces all data saved in the internal memory with the data in the USB flash drive.

◆ Restoring data from USB flash drive

1 Open the cover of the accessory tray.

2 With the instrument turned off, check the orientation of the USB flash drive and insert it into the USB port a.



3 Turn on the power switch.

4 [Data]

→ Data management screen

5

→ Restore confirmation message

- Yes : Restore

  → Restored data list

- No : Cancel

  Cancels restoration.

6 Select the data to be restored.

→ Restore data screen

7 Select the data to be restored.

- When restoring shape data

  1) Select the data to be restored.

  2)

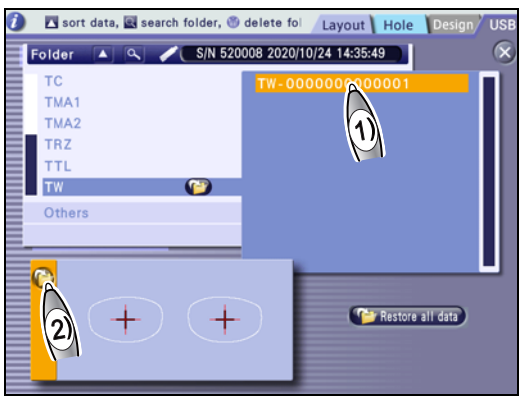
  → Restore confirmation message

  - Yes : Restore

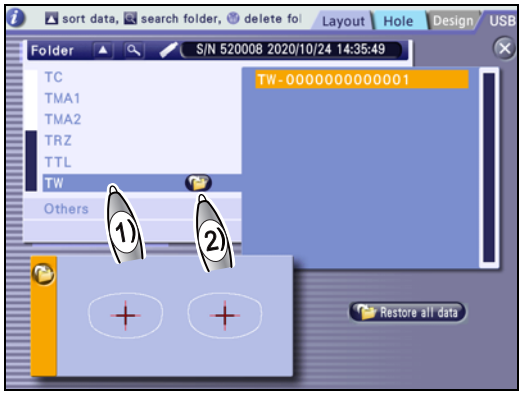
    The data is restored to the internal memory.

  - No : Cancel

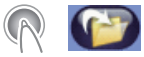
    Cancels restoration.



- When restoring a folder



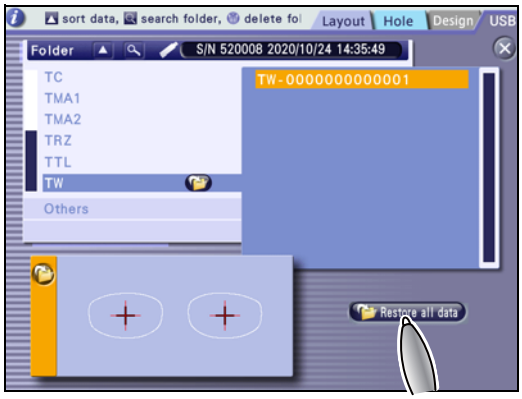
1) Select the folder to be restored.

2) 

→Restore confirmation message

- Yes : Restore
  Restores the folder to the internal memory.
- No : Cancel
  Cancels restoration.

- When replacing all data



1) [Restore all data]

→ Replace confirmation message

2) Yes : Replace

→ Replace confirmation message

- Yes : Replace
  Replaces all shape data in the internal memory.
- No : Cancel
  Cancels replacement.

8 When backup is complete, turn off the power switch of the instrument.

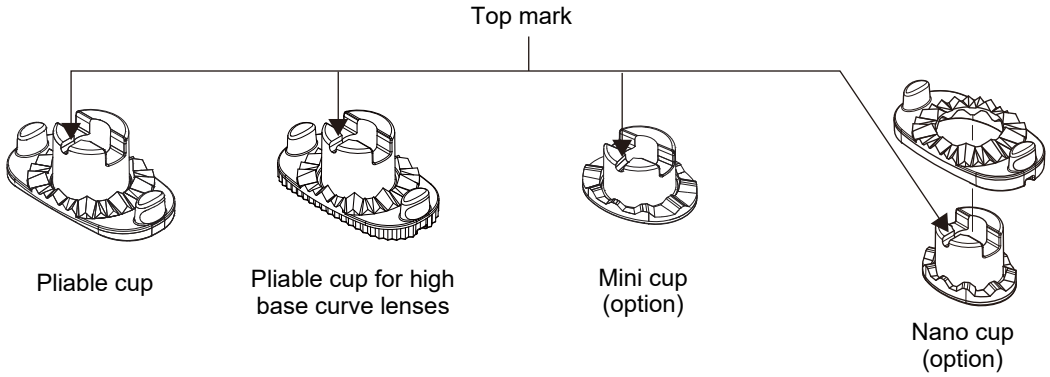
9 Disconnect the USB flash drive.

3.5 Preparation for Blocking

Contents described in this section

3.5.1 Lens cups

- Available lens cups

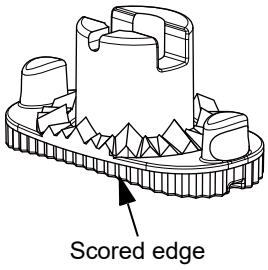


- Blocking with pliable cup for high base curve lenses

Be sure to use the pliable cup for high base curve lenses when processing a lens that has a front surface with a base curve of 6 or greater.

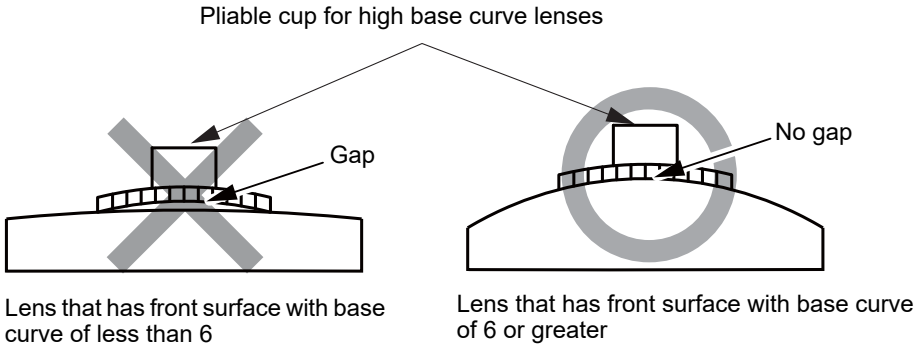
Using the standard pliable cup may cause axis shift or cracks on a coated surface.

The scored edge of the pliable cup for high base curve lenses allows it to be distinguished from the standard pliable cup.



Do not use the pliable cup for high base curve lenses when processing a lens that has a front surface with a base curve of less than 6. Doing so may cause a gap between the cup and lens resulting in the following malfunctions:

The cup becomes detached. / Axis shift occurs. / Roughing cannot be performed properly. / Cracks may occur on a coated surface.

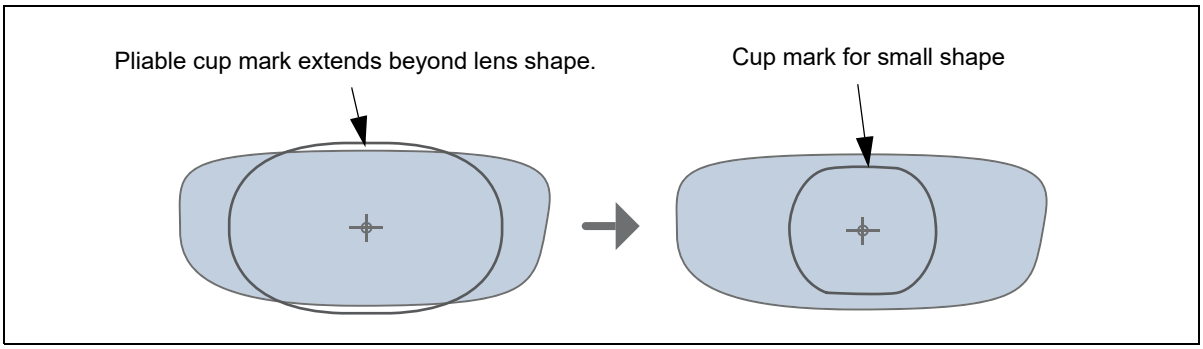


- When displayed cup mark reduces in size

When the “Cup type for small shape” parameter is set to [Mini cup] or [Nano cup] and the cup may come into contact with the wheels during processing because the lens vertical size is small, the cup mark changes as shown in the figure below. In this case, use a mini cup or nano cup.

A-02*“ Size mode” (page 175)*

A cup mark display is a guide. Processing may not be possible with the displayed lens cup depending on the layout data or such. Even if the displayed cup mark is a mini cup, do not block the lens if it contacts the shape outline.

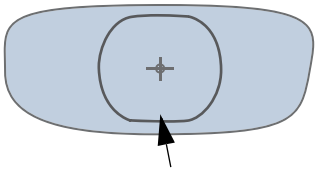


3.5.2 Using mini cup

To process a lens using the mini cup set (option), change the parameter setting and replace the lens adapter and lens clamp with those for mini cup. Consult our service personnel.

A-02“ *Size mode” (page 175)*

When the “Cup type for small shape” parameter is set to [Mini cup] or [Nano cup] and the cup may come into contact with the wheels during processing because the lens vertical size is small, the cup mark changes as shown to the right. In this case, use a mini cup or nano cup.



Cup mark for small shape

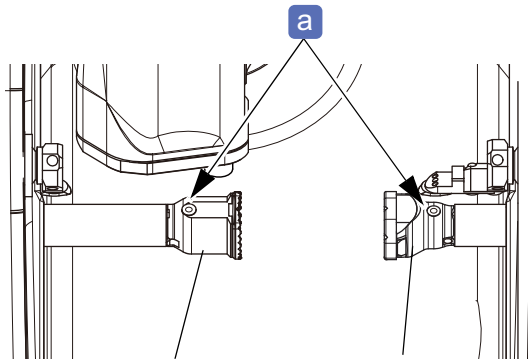
When B-08“ *Display message for small cup check” (page 177)* is set to [Exec], a confirmation message may appear when processing starts.

Pressing [Abort] in the message interrupts processing. Replace the lens adapter and lens clamp with those for mini cup and set the lens. Pressing START restarts processing. If the lens adapter and lens clamp have already been replaced with those for mini cup, pressing [Continue] restarts processing.

◆ Attaching lens adapter and lens clamp for mini cup

1 Remove the standard lens adapter and lens clamp.

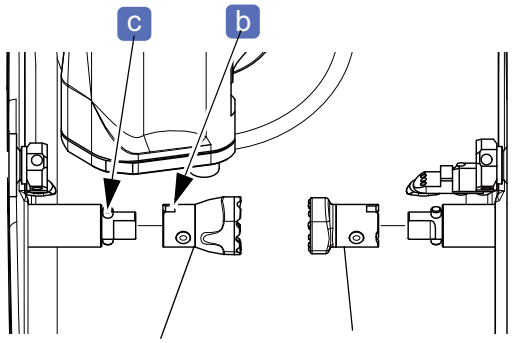
1) Loosen the set screw a with the hexagonal wrench to remove the standard lens adapter.
2) Loosen the set screw with the hexagonal wrench to remove the standard lens clamp.



Standard lens adapter Standard lens clamp

2 Attach the lens adapter and lens clamp for mini cup.

1) Align the notch b of the lens adapter for mini cup with the shaft pin c. Attach the lens adapter securely with the set screw facing up.
2) Tighten the set screw with the hexagonal wrench to fasten the lens adapter.
3) Align the notch of the lens adapter for mini cup with the shaft pin. Attach the lens adapter securely with the set screw facing up.
4) Tighten the set screw with the hexagonal wrench to fasten the lens adapter.

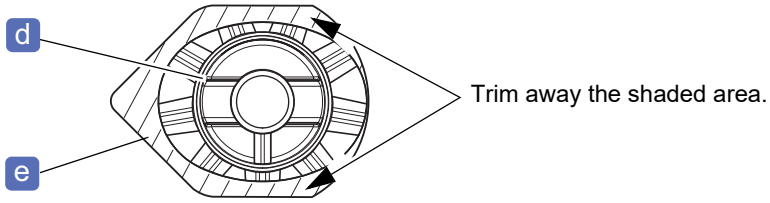


Lens adapter for mini cup Lens clamp for mini cup

3 Attach the double-coated adhesive pad for half-eye lens cup e to the mini cup d.

When using a mini cup, use the double-coated adhesive pad for half-eye lens cup. Trim away any excess parts of the double-coated adhesive pad along the edge of the mini cup.

❖ For handling of the mini cup, refer to the operator's manual for the mini cup set.



4 Block the lens.

The mini cups come in two colors: green and red. Be sure to use the green mini cup for the right-eye lens and the red one for the left-eye lens. Using the cup of the same color as that of the R or L indication on the layout screen helps processing the correct lens.

Note

To remove the mini cup, use the mini cup remover (option).

“3.8.3 Removing mini cup or nano cup” (page 84)

3.5.3 Using nano cup

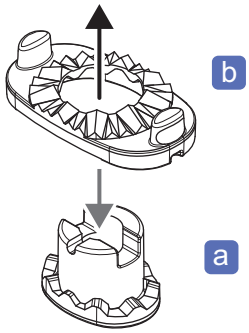
- To process a lens using the nano cup set (option), change the parameter setting and replace the lens adapter and lens clamp with those for nano cup. Consult our service personnel.

A-03“ *Cup type for small shape” (page 175)*

- When using a nano cup, be sure to use the double-coated adhesive pad for nano cup. Since the double-coated adhesive pad for pliable cup has no cut line, the supporter cannot be removed if it is used for a nano cup.

A nano cup a is used for processing lenses for small frames. It is used in combination with the supporter b. The supporter is detachable. For roughing, use the nano cup with the supporter attached. Remove the supporter before finishing, and perform finishing only with the nano cup.

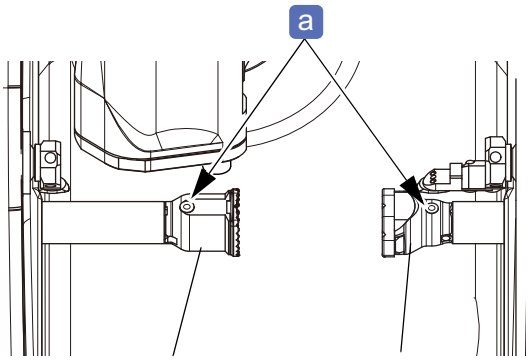
❖ For handling of the nano cup, refer to the operator's manual for the nano cup set.



◆ Attaching lens adapter and lens clamp for nano cup

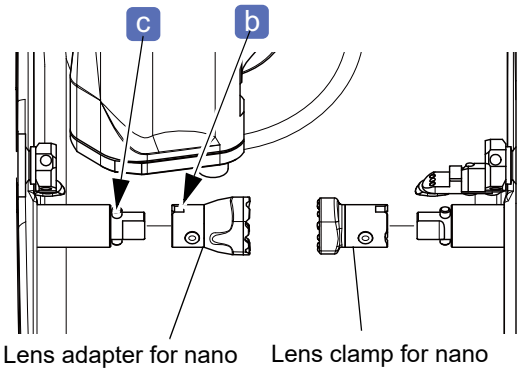
1 Remove the standard lens adapter and lens clamp.

1) Loosen the set screw a with the hexagonal wrench to remove the standard lens adapter.
2) Loosen the set screw with the hexagonal wrench to remove the standard lens clamp.



2 Attach the lens adapter and lens clamp for nano cup.

1) Align the notch b of the lens adapter for nano cup with the shaft pin c. Attach the lens adapter securely with the set screw facing up.
2) Tighten the set screw with the hexagonal wrench to fasten the lens adapter.
3) Align the notch of the lens adapter for nano cup with the shaft pin. Attach the lens adapter securely with the set screw facing up.
4) Tighten the set screw with the hexagonal wrench to fasten the lens adapter.



3 Attach the double-coated adhesive pad for nano cup to the nano cup.

4 Block the lens.

The nano cups come in two colors: green and red. Be sure to use the green nano cup for the right-eye lens and the red one for the left-eye lens. Using the cup of the same color as that of the R or L indication on the layout screen helps processing the correct lens.

Note

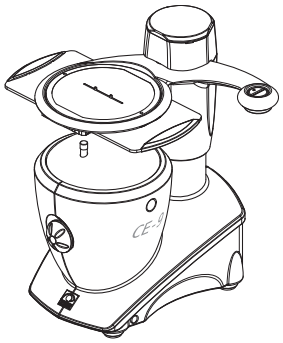
To remove the nano cup, use the mini cup remover (option).

"3.8.3 Removing mini cup or nano cup" (page 84)

3.6 Blocking Lenses with CE-9

Contents described in this section

❖ For detailed handling of the CE-9, refer to the operator's manual for the CE-9.

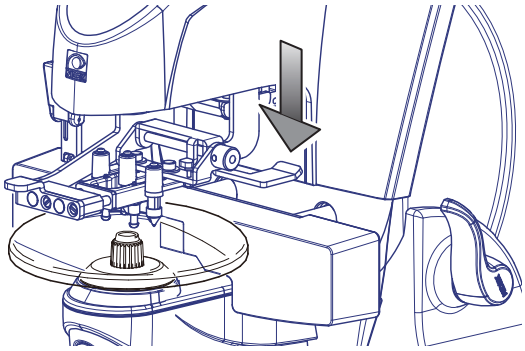


The lens cups come in two colors: green and red. Use the green cup for the right-eye lens and the red one for the left-eye lens.
Using the cup of the same color as that of the R or L indication on the layout screen helps processing the correct lens.

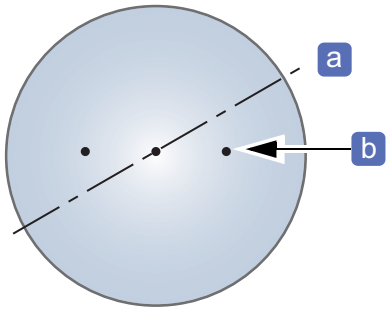
3.6.1 Blocking lenses at optical center

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

❖ For details of marking, refer to the operator's manual for the lensmeter.



For a lens containing cylindrical power, mark b the cylinder axis a according to the prescribed axis value.



2 Prepare a pliable cup.

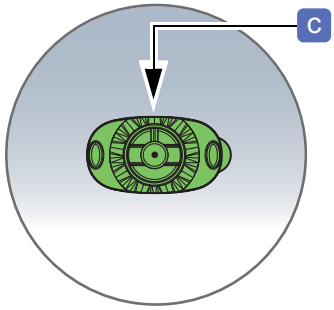
1) Attach the double-coated adhesive pad for pliable cup to the pliable cup.

Use the lens cup as indicated below to prevent confusion of the right and left lenses.

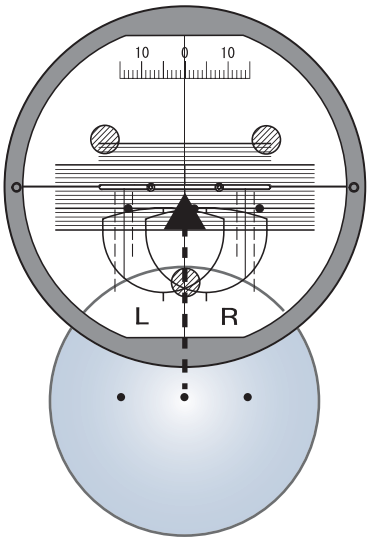
Right (R) lens	Green pliable cup
Left (L) lens	Red pliable cup

2) When attaching the pliable cup, orient the top mark (notch) C toward the lens top edge.

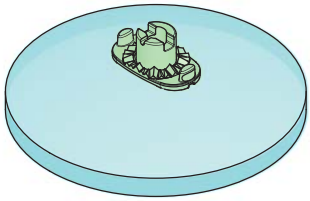
- For a dual-tone colored lens, confirm its top and bottom, then orient it so that the tinting line is horizontal.
- Suction cups and full-eye lens cups cannot be used.



3 Center the markings on the lens while aligning them horizontally within the vertical reference frame on the CE-9 screen.



4 Block the convex surface of the lens with the pliable cup.



Note

To remove the pliable cup or the pliable cup for high base curve lenses, use the pliable cup remover.

"3.8.1 Removing pliable cup and pliable cup for high base curve lenses" (page 82)

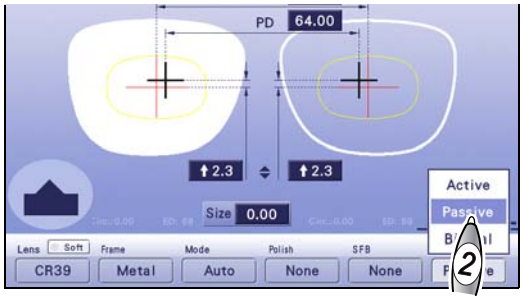
3.6.2 Blocking lenses at frame center

- When the layout data is entered with [Passive] selected, the decentration direction and amount of the optical center are displayed at the bottom of the screen. According to the values, decenter the optical center with the CE-9 slide scale, and block the lens at the frame center.

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

Step 1 in *"3.6.1 Blocking lenses at optical center" (page 75)*

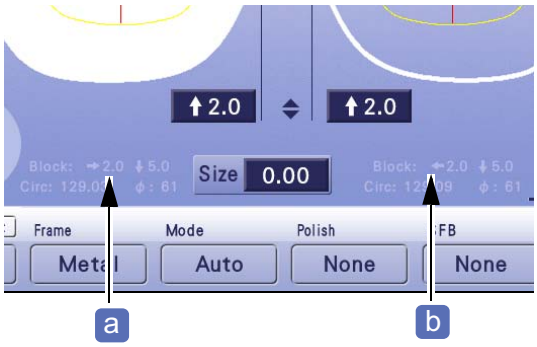
2 [Layout] → Passive



The decentration direction and amount of the optical center are displayed at the bottom of the screen.

- a : Decentration direction and amount of the right-eye lens optical center
- b : Decentration direction and amount of the left-eye lens optical center

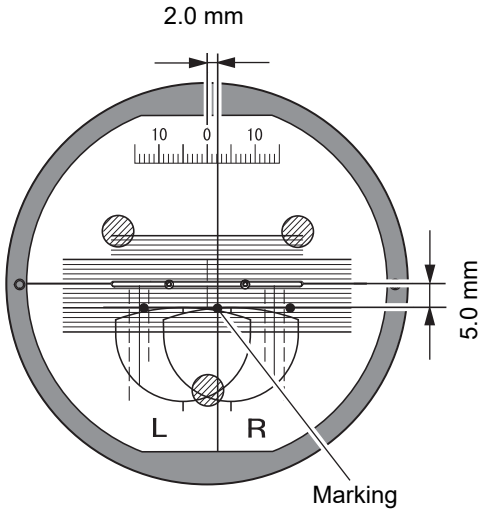
Ex.— →2.0 ↓5.0



3 Shift the slide scale of the CE-9 to decenter the optical center.

According to the indication of "→2.0 ↓5.0", decenter the optical center by 2.0 mm to the right and 5.0 mm downward using the CE-9.

4 Block the convex surface of the lens with the pliable cup.



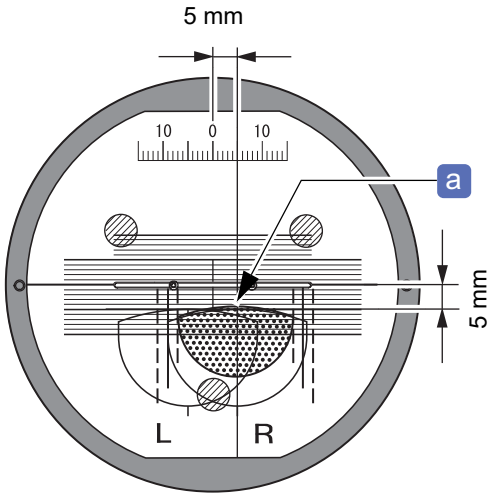
3.6.3 Bifocal lens blocking

◆ Blocking lenses with default parameter settings

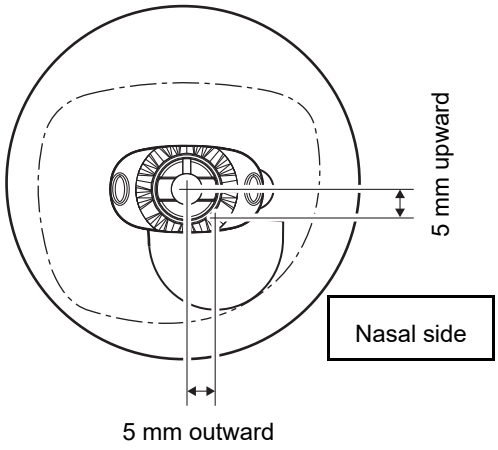
In the CE-9, the segment layout mark is indicated at the position of 5 mm outward and 5 mm upward from the top line center of segment on the screen. Block that position of the lens when blocking a bifocal lens with the default settings.

1 Align the segment of the lens to the segment layout mark of the CE-9.

The alignment position is 5 mm outward and 5 mm upward from the top line center of segment a .

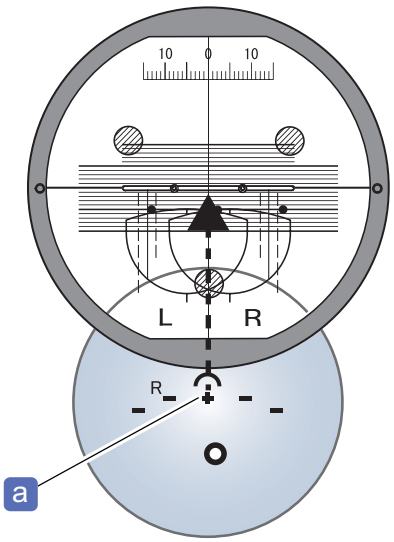


2 Block the convex surface of the lens with the pliable cup.

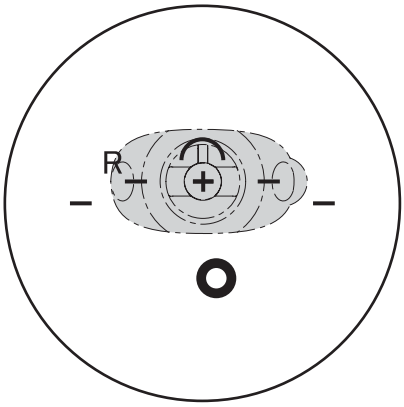


3.6.4 Progressive lens blocking

1 Center the distance eyepoint mark a on the progressive lens while aligning it horizontally within the vertical reference frame on the CE-9 screen.



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



3.7 Setting and Removing Lenses

Contents described in this section

3.7.1 Setting lenses

⚠ CAUTION

- Be careful not to get fingers caught when chucking a lens.
  Fingers may get hurt.
- Confirm that the color of the lens cup is the same as that of R (green) or L (red) displayed on the layout screen. The green cup is used for the right-eye lens and the red one is used for the left-eye lens. If the colors do not match, the lens side may be incorrect.
- Pressing START closes the processing chamber door automatically. When processing is complete, it opens automatically.
  Do not place any object on the processing chamber door, and be careful not to get fingers caught.

1 

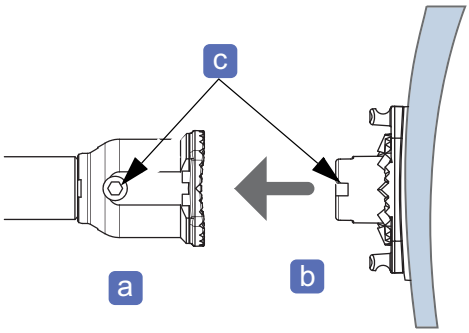
The processing chamber door opens.

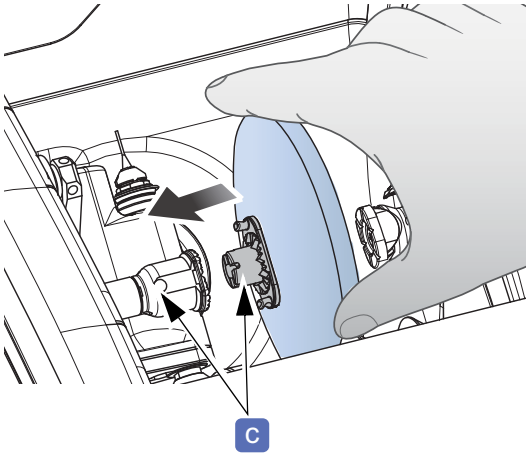
2 Block the lens with an intelligent blocker or the CE-9.

"3.5 Preparation for Blocking" (page 69), *"3.6 Blocking Lenses with CE-9" (page 75)*

3 Set the lens to the lens adapter.

Securely insert the pliable cup b into the lens adapter a with the top marks c aligned.





4 While holding the lens by hand, press CHUCK.

The lens is fastened.

5 

The processing chamber door closes automatically, then processing starts.

3.7.2 Removing lenses

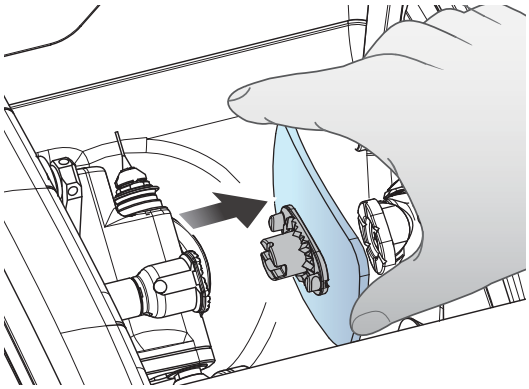
⚠ CAUTION

- When processing is complete, the processing chamber door opens automatically.
  Do not place any object on the processing chamber door, and keep your face and hands away from the door to prevent them from being hit.
- Hold the lens by one hand when releasing the lens chuck. In rare cases, the lens may adhere to the lens clamp and fall into the processing chamber.

1 When processing is complete, the processing chamber door opens automatically. While holding the lens by one hand, press 

.

2 Take out the processed lens.



3 Remove the lens cup.

“3.8 Removing Lens Cup” (page 82)

When retouching the lens, do not remove the lens cup. The lens can no longer be retouched.

3.8 Removing Lens Cup

Contents described in this section

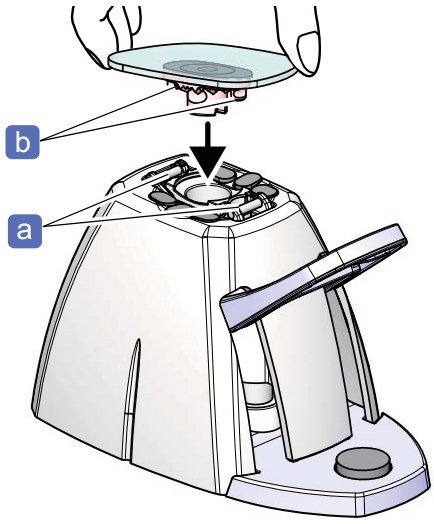
- Pliable cups are a consumable. Replace the pliable cup with a new one when it becomes difficult to remove the double-coated adhesive pad from the cup.
- Lightly wipe any processing waste or moisture off the lens before setting it on the pliable cup remover. Processing waste or moisture getting into the pliable cup remover may cause a malfunction of the instrument.

3.8.1 Removing pliable cup and pliable cup for high base curve lenses

To remove the pliable cup or pliable cup for high base curve lenses (hereafter, referred to as pliable cup) from a lens, use the pliable cup remover.

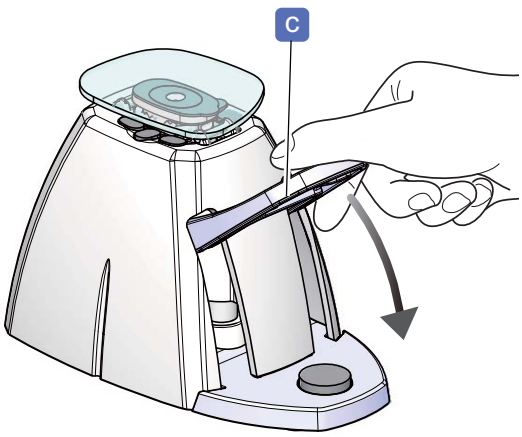
1 Set a lens with the pliable cup attached on the pliable cup remover.

Fit the hooks b on both sides of the pliable cup into the notches a at the top of the pliable cup remover.



2 Lower the lever c to pull down the pliable cup so that it is removed from the lens.

Depending on the lens curve or coating, the pliable cup may not be removed even when the lever is lowered to the bottom. In this case, pull up the lens by hand to remove it from the pliable cup with the lever lowered.



3.8.2 Removing nano cup supporter

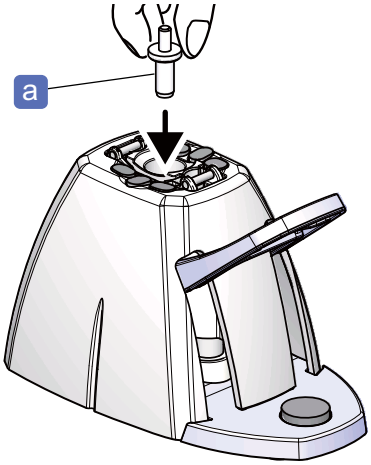
This section describes the procedure to remove the nano cup supporter after roughing.

The nano cup set (option) contains the nano cup, supporter, and pin.

Lightly wipe any processing waste or moisture off the lens before setting it on the pliable cup remover. Processing waste or moisture getting into the pliable cup remover may cause a malfunction of the instrument.

1 Set the pin a included in the nano cup set to the pliable cup remover.

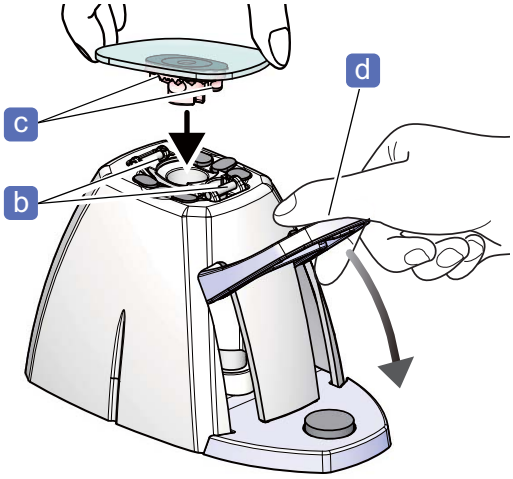
Insert the pin with its thicker side down.



2 Set a lens with the nano cup and supporter attached on the pliable cup remover.

Fit the hooks c on both sides of the supporter into the notches b at the top of the pliable cup remover.

3 Lower the lever d to pull down the supporter so that it is removed from the lens.



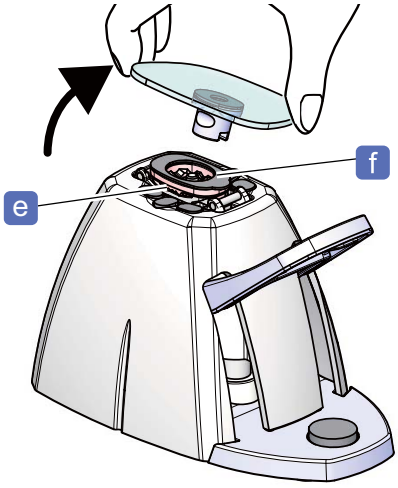
4 Pull up the lens.

The supporter e is removed and only the nano cup is left on the lens.

If the double-coated adhesive pad for the supporter f is left on the lens, remove it.

5 Return the lever to its original position, and remove the supporter from the pliable cup remover.

6 Remove the pin from the pliable cup remover.



3.8.3 Removing mini cup or nano cup

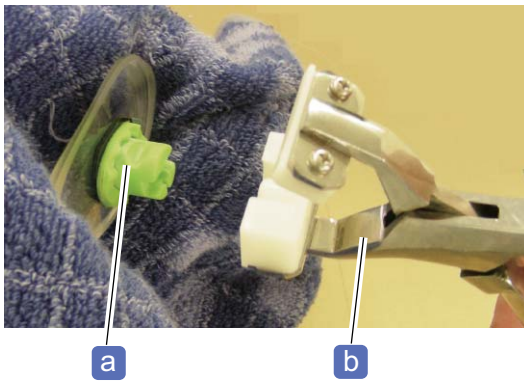
Use the mini cup remover to remove a mini cup or nano cup from a lens.

⚠ CAUTION

- Hold a lens with a soft cloth.
  Hands may be injured by lens edges if a lens is held directly.
- Do not pry the mini cup remover horizontally or vertically when removing the cup.
  The coated lens surface may be damaged.

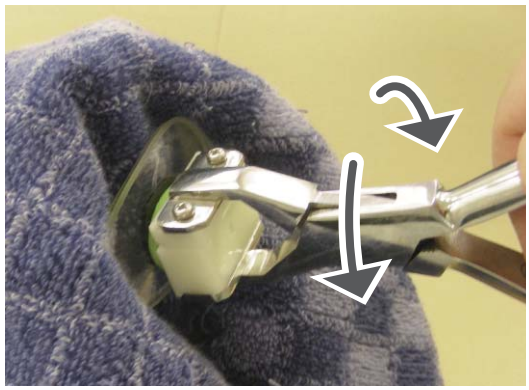
1 Grip the lens with the mini cup or nano cup attached with the mini cup remover.

Pinch the mini cup or nano cup with the mini cup remover b making sure that the notch a on the mini cup or nano cup faces up.



2 Squeeze the handles to hold the mini cup or nano cup securely.

3 Gently twist (turn) the mini cup remover to remove the mini cup or nano cup.



4 LAYOUT SETTING AND PROSESSING

Contents described in this chapter

- Type PLB-2R8S is generally the basis for the explanations in this chapter.
- For design and step edits, see Chapter 5.
- Although entering processing conditions and layout data is normally performed with an intelligent blocker (when connected), it can be performed on the ME-1500 as well.

4.1 Entering Processing Conditions

Contents described in this section

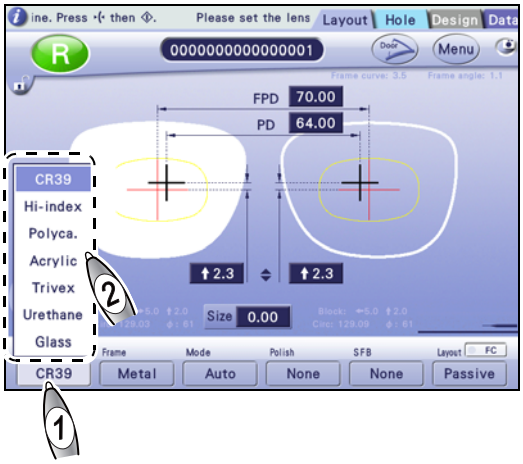
4.1.1 Lens material selection

Load shape data to the layout screen before entering the processing conditions.

1 [Lens]

2 Select the lens material.

Lens material
CR39
Hi-index (plastic lens with a refractive index of 1.60 or greater)
Polyca. (polycarbonate)
Acrylic
Trivex
Urethane (polyurethane)
Glass

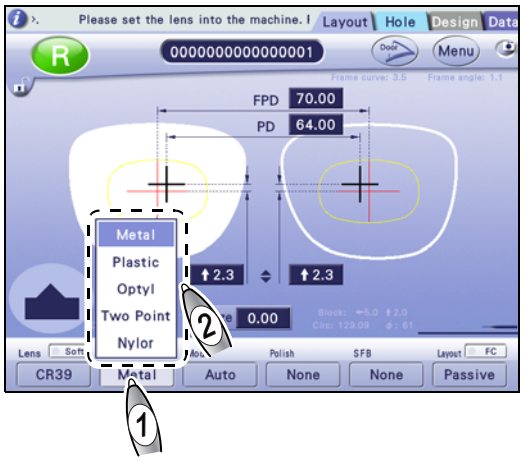


- Select the lens material correctly.
  Otherwise, the lens cannot be processed properly. The wheel lifetime is also reduced.
- To process plastic lenses that are prone to burrs or chips, select [Hi-index].
- To process a lens material that is susceptible to heat such as Trivex lenses, select [Trivex].

4.1.2 Frame type selection

1 [Frame]

2 Select the frame type.

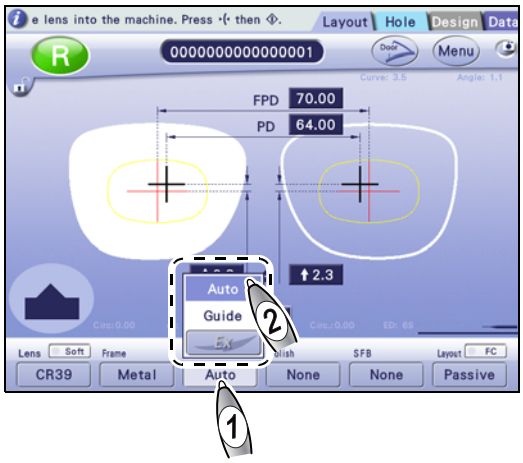


Frame type
Metal
Plastic
Optyl (epoxy frame)
Two Point
Nylor

4.1.3 Processing mode selection

1 [Mode]

2 Select the processing mode.



Processing mode	Details
Auto	The bevel/groove position and curve are automatically calculated by computer.
Guide	The bevel/groove position and curve are manually entered.
Flat	Beveling or grooving is not performed.
Hole	Drilling is performed when shape has hole data.
EX	EX lens processing

● Selecting processing mode

The table below shows the processing type available for each combination of the frame type and processing mode.

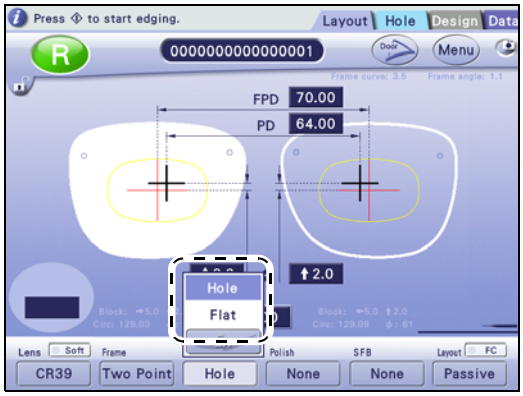
Processing type		Frame type	Processing mode
Beveling	Auto beveling	Metal / Plastic / Optyl	Auto
	Guide processing		Guide
	EX lens beveling		EX + Guide
Flat edging	Flat edging	Two Point / Nylor	Flat
	EX lens flat edging		EX + Flat
	Auto grooving	Nylor	Auto
	Guide grooving		Guide
	EX lens grooving		EX + Guide

● Processing mode for shape with hole data

When shape data has hole data, [Hole] is displayed in the pop-up menu. If [Hole] is not selected, the button indication changes to 

or such and drilling is not performed.

In addition, selecting [Two Point] for the frame type and [Flat] for the processing mode does not perform drilling.

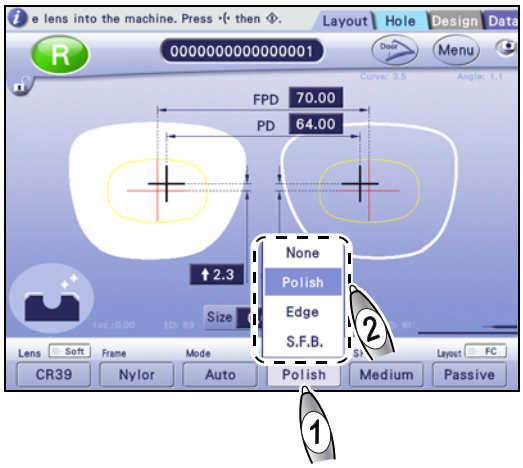


4.1.4 Polish setting

- Polishing is unavailable for glass lenses.
- Polishing is unavailable when the bevel type is set to [Hi-curve] or [Custom].
- Polishing of lens edge is unavailable when the bevel type is set to [Mini bevel].

1 [Polish]

2 Select the desired item.



Polish	Processing image
None	
Polish	
Edge	
SFB	

4.1.5 Safety bevel setting

- For detailed setting of [Small], [Medium], [Large], and [Special], see *"6.4.9 Safety bevel amount setting" (page 218)*.
- [Special] is unavailable for glass lenses.
- Safety beveling is unavailable when the processing mode is set to [Hi-curve].
- [Facet] is available only when the frame type is set to [Two Point].

1 [SFB]

2 Select the desired item.

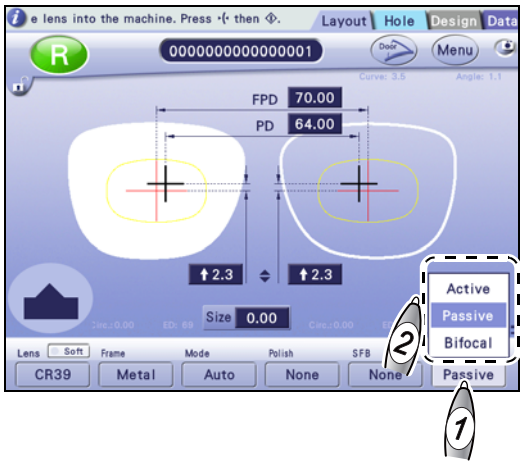
SFB	Processing image
None	
Small, Medium, Large, Special	
Facet	

4.1.6 Layout mode setting

- Select [Passive] or [Active] for the layout mode.
- The layout mode for bifocal lenses is fixed to [Passive].

1 [Layout]

2 Select the layout mode.



Active	Blocks a lens at the optical center.
Passive	Blocks a lens at the boxing center*a.
Bifocal	Blocks a lens at the position specified by the parameter with reference to the segment position.

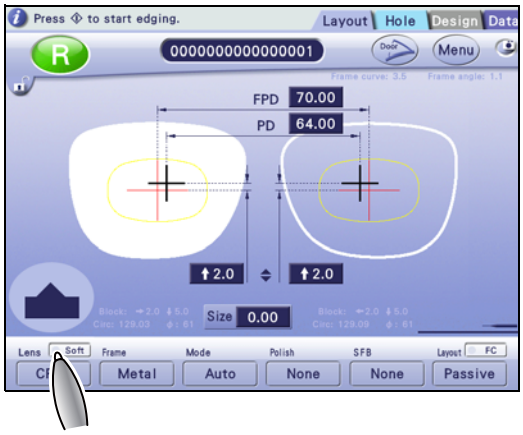
*a. The center of a box drawn around the lens shape using its maximum height and width.

4.1.7 Soft processing mode setting

For a slippery lens (due to a coating or such) or a glass lens with possibility of breaking, select Soft.

Soft / Soft

Soft processing	Button
On	Soft
Off	Soft



4.2 Entering Layout Data

Contents described in this section
"4.2.1 Single vision lens layout" (page 91)
"4.2.2 Bifocal lens layout" (page 94)
"4.2.3 Progressive lens layout" (page 96)
"4.2.4 Shape size adjustment" (page 97)

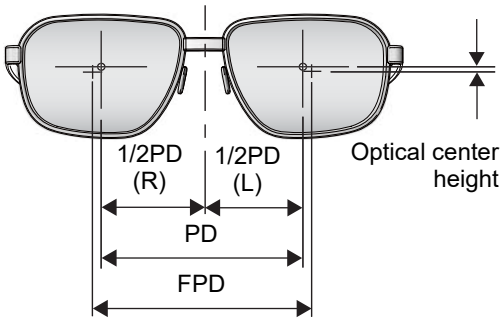
When shape data is loaded to the layout screen, unconfirmed data values are displayed with a yellow background. Change or confirm all of them.

4.2.1 Single vision lens layout

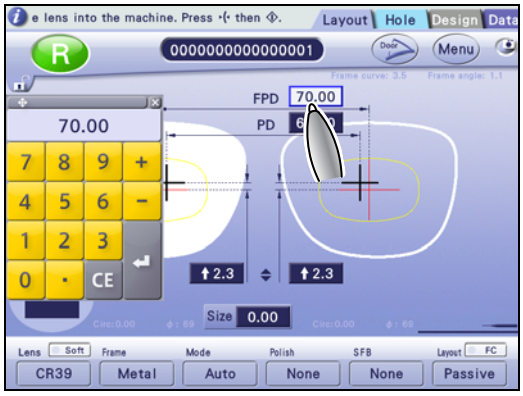
For the layout of a single vision lens, enter FPD (DBL), PD (1/2PD), and the optical center height.

The default values can be set by the parameter.

F-04*" Optical center height" (page 185)*



1 Set FPD or DBL.



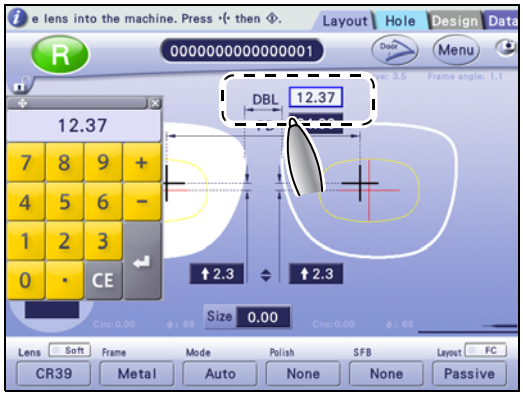
- When setting FPD

[FPD] field

→

FPD	
Setting range	30.00 to 99.50 mm
Increment	0.01 mm

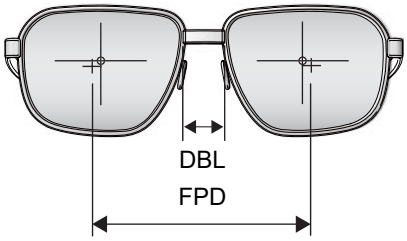
- When setting DBL



[DBL] field

→

DBL	
Setting range	0.00 to 99.50 mm – Shape width
Increment	0.01 mm

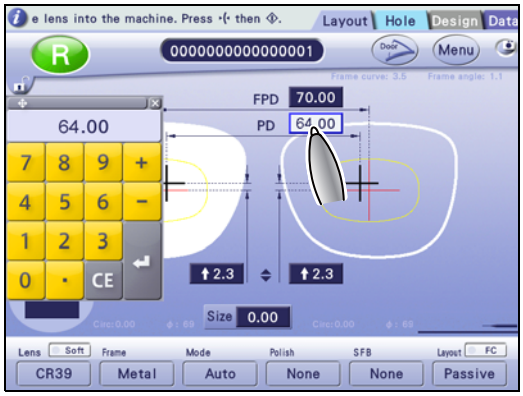


❖ For the DBL entry, take note of the following point.

The DBL value should be regarded as a reference value.
When DBL is entered, as the lens width and frame warping angle become larger, the precision of PD will be increasingly off. This deviation is caused by conversion from DBL to FPD. Thus, take DBL as a reference value and it is recommended to enter FPD that does not cause such a deviation.
When measuring DBL with a vernier caliper or such, use the following calculation formula to determine and enter FPD.

DBL + shape width × cos (frame warping angle) = FPD

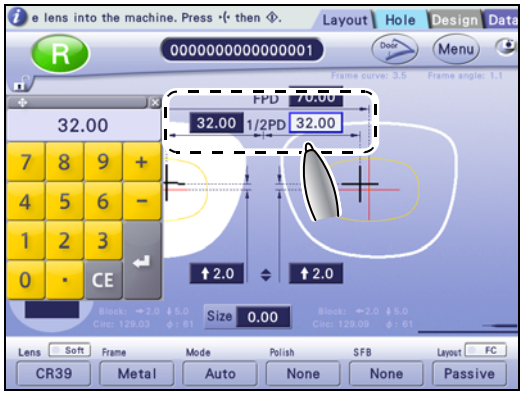
2 Set PD or 1/2PD.



- When setting PD

[PD] field

PD	
Setting range	30.00 to 99.50 mm
Increment	0.01 mm



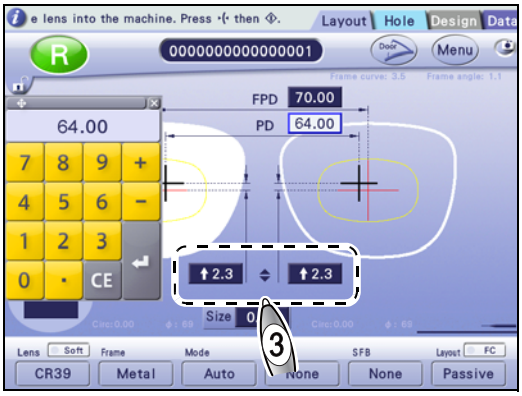
- When setting 1/2PD

[1/2PD] field

1/2PD	
Setting range	15.00 to 49.75 mm
Increment	0.01 mm

If no value is entered for the opposite shape, the same value is automatically copied.

3 Select a method to enter the optical center height.



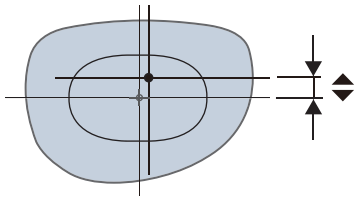
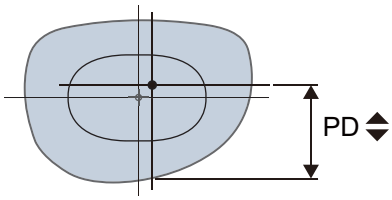
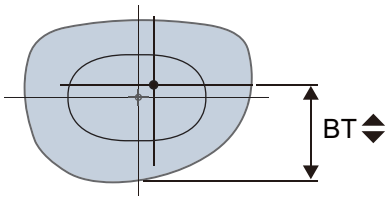
▲▼/PD▲▼/BT▲▼ field

Enter the optical center height individually for the right and left shapes.

→ Height value

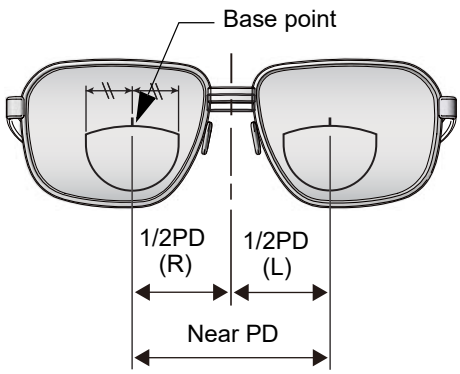
▲▼ PD▲▼/BT▲▼ (converted to ▲▼)	
Setting range	-15.0 to +15.0 mm
Increment	0.1 mm

If no value is entered for the opposite shape, the same value is automatically copied.

▲▼	Enter the vertical distance from the frame center to the optical center. Entering a positive value moves the optical center upward, and entering a negative value moves it downward.	
PD▲▼	Enter the vertical distance from the optical center to the point on the lens shape directly below it.	
BT▲▼	Enter the vertical distance from the optical center to the lowest point on the lens shape.	

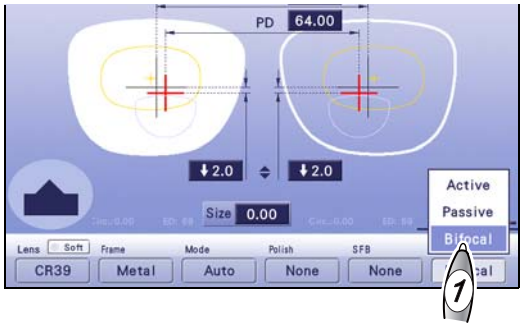
4.2.2 Bifocal lens layout

For the layout of a bifocal lens, enter FPD (DBL), near PD (1/2PD) and the optical center height according to the prescription.



1 Select the layout mode.

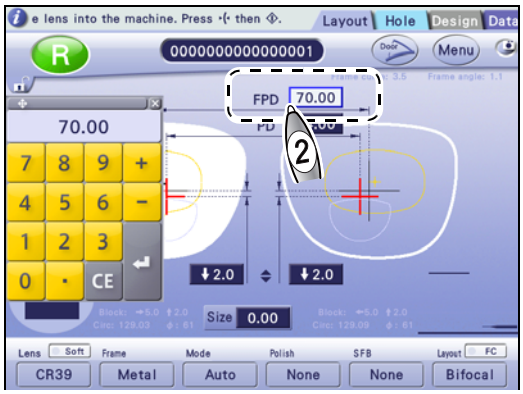
[Layout] → Bifocal



2 Set FPD or DBL.

[FPD]/[DBL] field

→

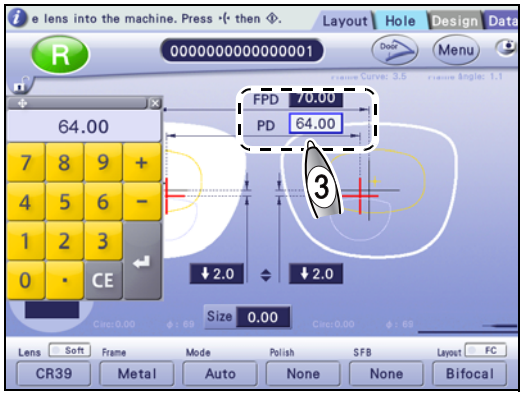


3 Set PD or 1/2PD.

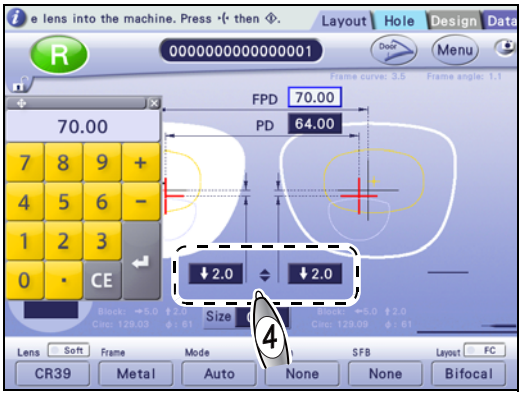
[PD]/[1/2PD] field

→ Prescribed near PD value (PD for segment)

If 1/2PD for the opposite shape is not entered, the same value is automatically copied.



4 Select a method to enter the optical center height.



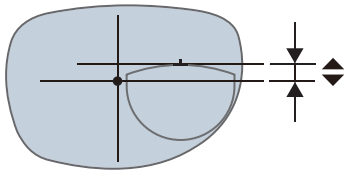
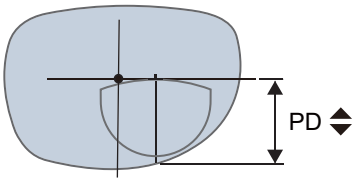
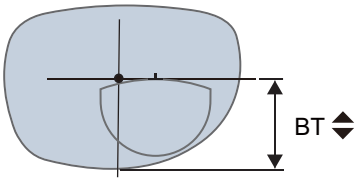
↕/PD↕/BT↕ field

Enter the optical center height individually for the right and left shapes.

→ Height value

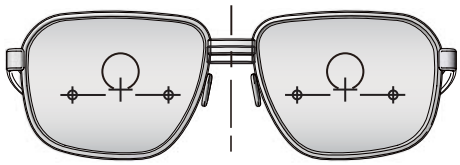
↕ PD↕/BT↕ (converted to ↕)	
Setting range	-15.0 to +15.0 mm
Increment	0.1 mm

If no value is entered for the opposite shape, the same value is automatically copied.

↕	Enter the vertical distance from the frame center to the top line center of segment. Entering a positive value moves the segment upward, and entering a negative value moves it downward.	
PD↕	Enter the vertical distance from the top line center of segment to the point on the lens shape directly below it.	
BT↕	Enter the vertical distance from the top line center of segment to the lowest point on the lens shape.	

4.2.3 Progressive lens layout

For the layout of a progressive lens, enter FPD, PD, and the optical center height according to the prescription.

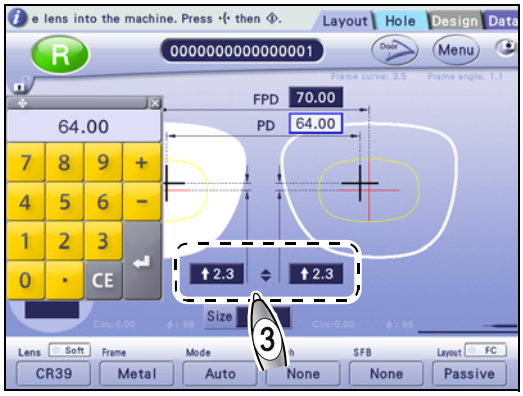


1 Set FPD or DBL.

2 Set PD or 1/2PD.

Perform Steps 1 and 2 in *"4.2.1 Single vision lens layout" (page 91)*.

3 Select a method to enter the optical center height.



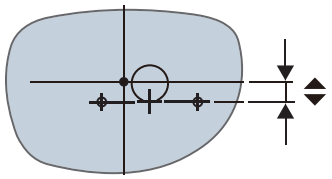
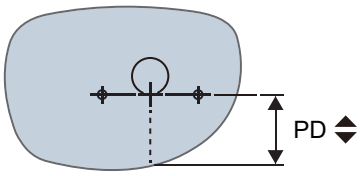
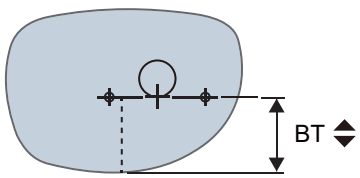
/PD /BT field

Enter the optical center height individually for the right and left shapes.

→ Height value

/PD /BT (converted to)	
Setting range	-15.0 to +15.0 mm
Increment	0.1 mm

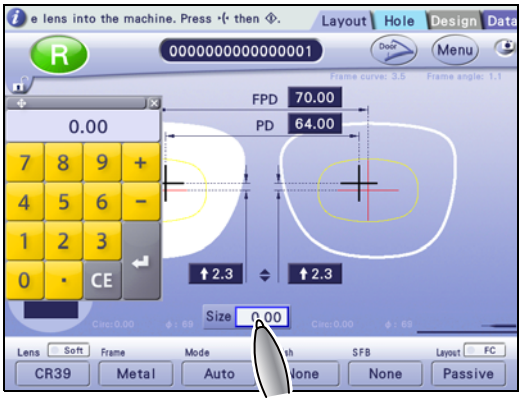
If no value is entered for the opposite shape, the same value is automatically copied.

	Enter the vertical distance from the frame center to the distance eyepoint. Entering a positive value moves the distance eyepoint upward and entering a negative value moves it downward.	
PD	Enter the vertical distance from the distance eyepoint to the point on the lens shape directly below it.	
BT	Enter the vertical distance from the distance eyepoint to the lowest point on the lens shape.	

4.2.4 Shape size adjustment

Adjust the shape size as necessary. The shape of a pattern or data is enlarged or reduced with this function and the data can be used as different size data.

[Size] field

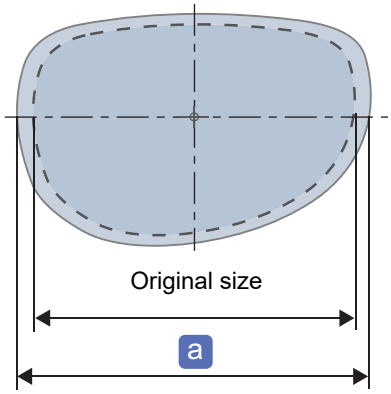


Entering a positive value enlarges a shape, and entering a negative value reduces it.

Size	
Setting range	-9.95 to +9.95 mm
Increment	0.01 mm

Ex.— Entry of +5.00 mm

The shape is enlarged by 5 mm a laterally with reference to the optical center. It is also enlarged vertically with a similar form maintained.



4.3 Beveling

Contents described in this section

4.3.1 Auto beveling

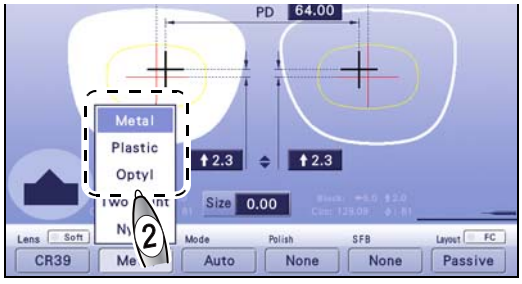
Auto beveling allows the bevel curve and bevel position to be automatically calculated by computer.

1 Select the lens material.

"4.1.1 Lens material selection"

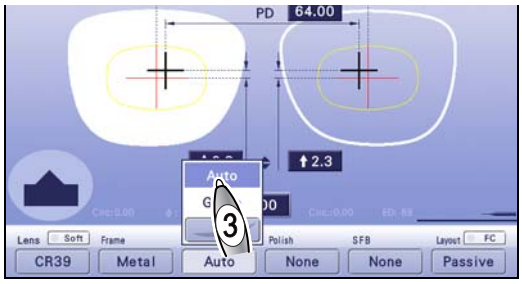
2 Select the frame type.

[Frame] → Metal / Plastic / Optyl



3 Select the processing mode.

[Mode] → Auto



4 Set the other processing conditions as necessary.

5 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

6 START

The processing chamber door closes automatically, then processing starts.

7 When processing is complete, remove the lens.

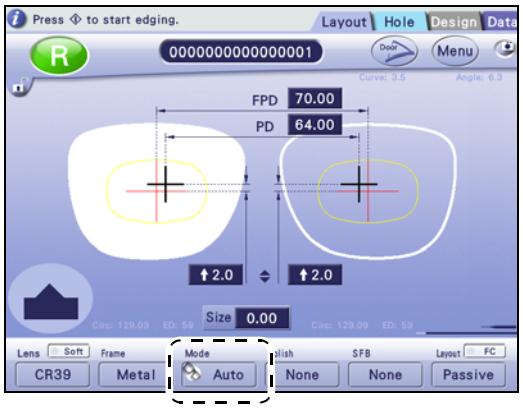
"3.7.2 Removing lenses" (page 81)

◆ Auto frame-based curve beveling

When the “Activate frame-based curve in auto mode beveling” parameter on the General screen is set to [Exec], a lens is beveled based on the frame curve.

The  mark is displayed on the [Auto] button.

 A-09*“ Activate frame-based curve in auto mode beveling” (page 175)*



Auto frame-based curve beveling is unavailable when a pattern or demo lens is traced or the frame curve is 0.0. In this case, normal auto beveling is performed.
When a frame whose shape is close to a perfect circle is traced, the frame curve may become 0.0.

4.3.2 Guide beveling

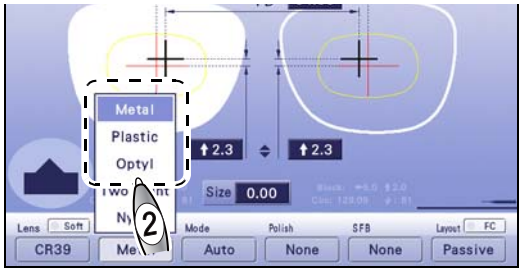
For guide beveling, the bevel curve and position are entered manually.

1 Select the lens material.

"4.1.1 Lens material selection"

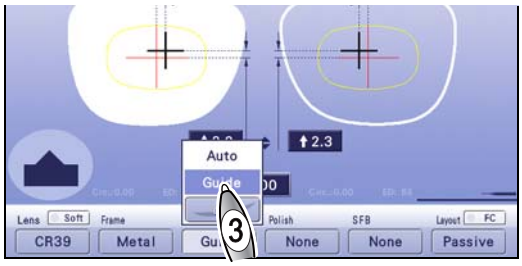
2 Select the frame type.

[Frame] → Metal / Plastic / Optyl



3 Select the processing mode.

[Mode] → Guide



4 Set the other processing conditions as necessary.

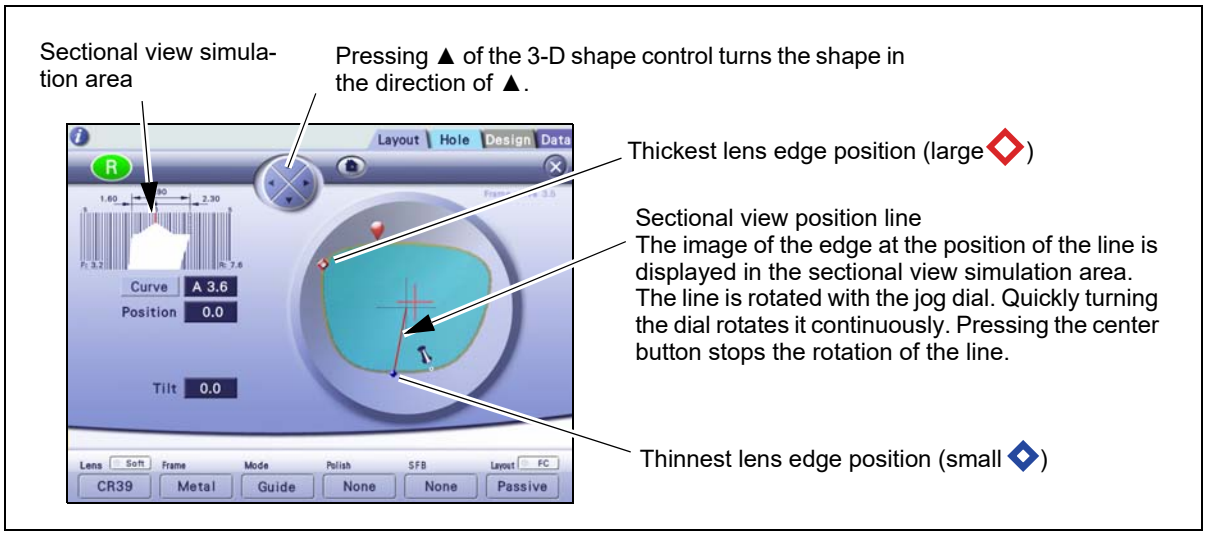
5 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

6

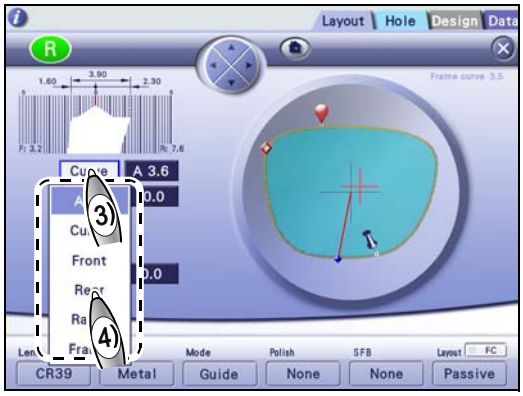
Shortly after processing started, blinks and processing pauses.

While checking the sectional view simulation area, correct the beveling settings.

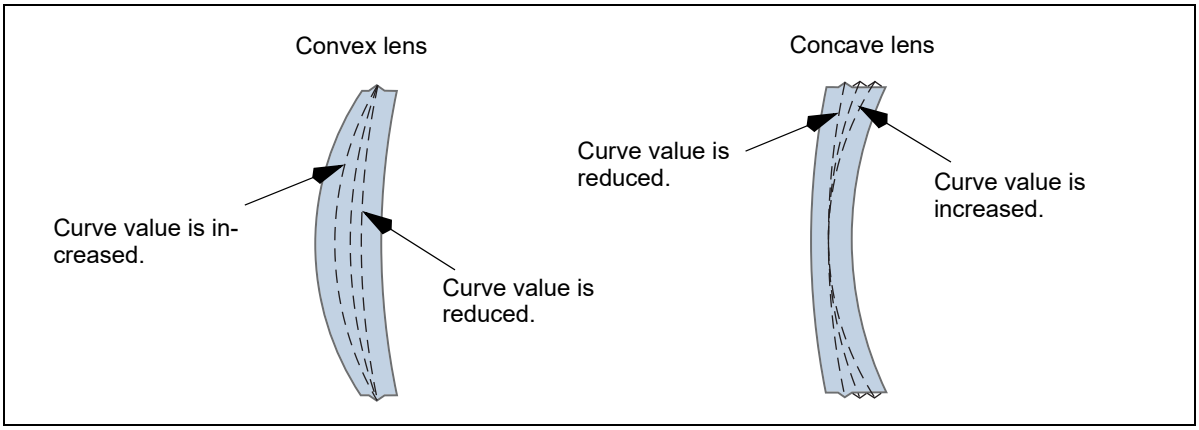


7 Set the curve as necessary.

1) Turn  to rotate the sectional view position line.
2) Stop the line at the thickest lens edge position (large ◇).
3)  Curve
4) Select the desired curve mode.



Auto	As the default, the computer-calculated bevel curve value (preceded by “A”) is displayed.
Curve	Pressing the entry field displays the numeric keypad. Enter the bevel curve value. Setting range: 0.1 to 12.0 Increment: 0.1
Front	Bevel curve based on the front surface of a lens
Rear	Bevel curve based on the rear surface of a lens
Ratio	Pressing the entry field displays the pop-up menu. Select the desired ratio. Ratio: 7:3 / 6:4 / 5:5 / 4:6 / 3:7
Frame	Bevel curve based on the frame curve



Note

- The curve value preceded by “A” is the same as that calculated by computer.
- When the lens front or rear curve value exceeds 12, [Front] or [Rear] cannot be selected for [Curve].
- When the frame curve is 0.0, [Frame] cannot be selected. When a frame whose shape is close to a perfect circle is traced, the frame curve may become 0.0.

Optimum processing mode for each lens type in beveling

Processing mode / Lens type	Auto	Guide			
		Curve	Front	Rear	Ratio
Single vision lens	◎	◎	–	–	○*a
Progressive	◎	◎	–	–	–
Bifocal	◎	◎	–	–	–
EX	–	–	–	◎	–

◎: Optimum mode (recommended mode)

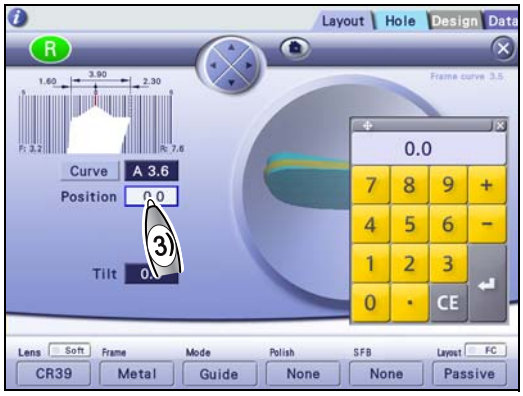
○: Available mode

*a: Select the ratio using the following as a guide.
Select 5:5 for a plus single vision lens with low power.
Select 4:6 or 5:5 for a plus single vision lens with medium or high power, and for a minus single vision lens with low power.
Select 3:7 or 4:6 for a minus single vision lens with medium power.
Select 3:7 for a minus single vision lens with high power.

For EX lenses, the initial display will be [Rear]. Do not change it. If [Front] is selected, beveling cannot be performed properly. To adjust the bevel position, use the tilt processing. When data for which the curve mode has already been specified is loaded from the server or such, the settings according to the specified curve mode are initially displayed.

"4.5 Tilt Function" (page 116)

8 Change the entire bevel position as necessary.



1) Turn  to rotate the sectional view position line.

2) Stop the line at the thinnest lens edge position (small ◆).

3)  [Position] field

→  Amount by which the bevel position is moved

Negative value	Moves the bevel position toward the lens front surface.
Positive value	Moves the bevel position toward the lens rear surface.

Ex.— Entering "-0.4" with the numeric keypad displays "←0.4" in the [Position] field and moves the bevel position toward the lens front surface by 0.4 mm.

The arrow ← before the value indicates that the bevel is moved toward the lens front surface, while → indicates that the bevel is moved toward the rear surface.

Ex.— Curve: 5.0 Position: ←0.4

The entire bevel whose curve value is 5 is moved toward the lens front surface by 0.4 mm.

4) To prevent the bevel from coming off the lens edge, change the bevel position while checking the bevel sectional view at the thinnest lens edge position (small ◆).

9 Turn  to rotate the sectional view position line to check the bevel sectional view. Repeat Steps 7 to 9 until the desired bevel sectional view is obtained.

Note

- When the bevel position and such are changed on the simulation screen, the changed values are copied for the opposite shape. However, if the settings related to the bevel or groove position are included in the shape data received from the server or blocker, the received settings are protected, and the changed values are not copied automatically. Edit the data of the opposite shape in the same manner as necessary.
- When the [Curve] or [Position] field is selected with the center button of the jog dial, tapping the edge of the 3-D shape displays the bevel sectional view at the tapped position.

10 

Processing restarts.

11 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

When the opposite lens is processed successively, the previous settings are displayed as the default values.

4.3.3 Mini beveling

Mini beveling allows the bevel height to be smaller than standard. This function is used when the frame groove is shallow.

The appearance becomes better because the lens bevel does not extend off of the frame groove.

- For the default setting of the mini bevel height, see F-08*" Mini bevel height" (page 185)*.
- Polishing is available only for the safety beveled edge.

1 Select the lens material.

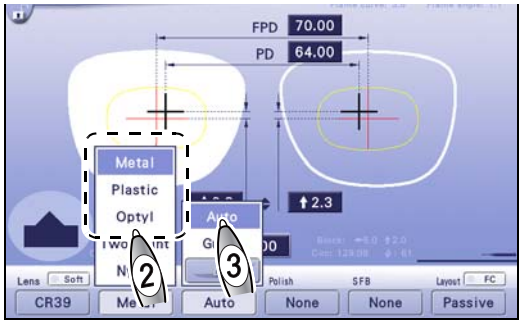
"4.1.1 Lens material selection"

2 Select the frame type.

[Frame] → Metal / Plastic / Optyl

3 Select the processing mode.

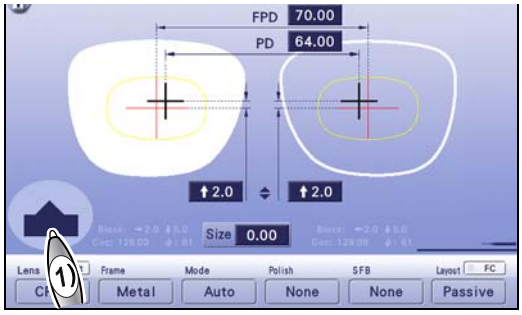
[Mode] → Auto / Guide



4 Select mini beveling.

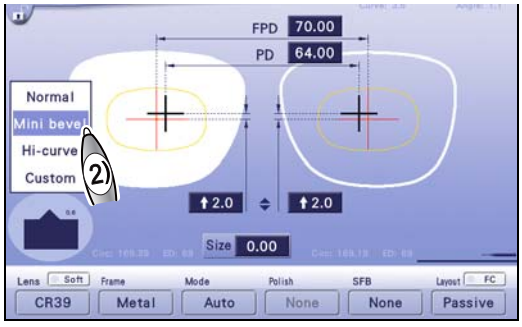
1) Processing image

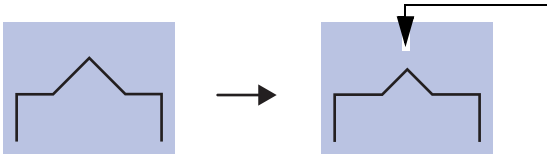
→Pop-up menu



2) Mini bevel

When [Mini bevel] is selected, the bevel is processed one size smaller than standard.





Mini bevel
Bevel is one size smaller than standard.

5 Set the other processing conditions as necessary.

- When Auto is selected in Step 3

  ❖ The subsequent procedure is the same as Steps 5 to 7 in *"4.3.1 Auto beveling" (page 98)*.

- When Guide is selected in Step 3

  ❖ The subsequent procedure is Steps 6 to 13.

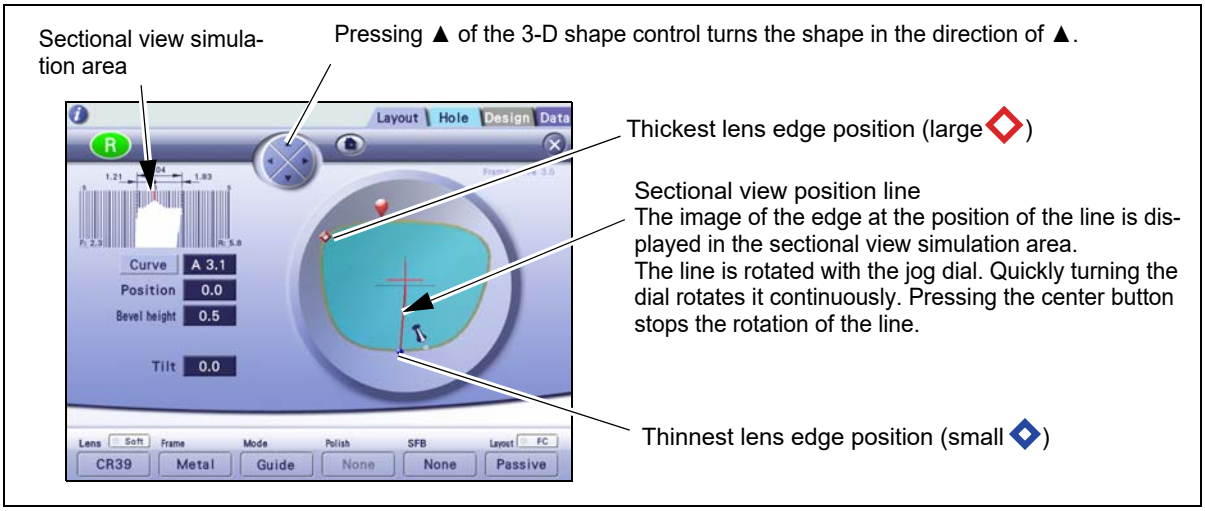
6 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

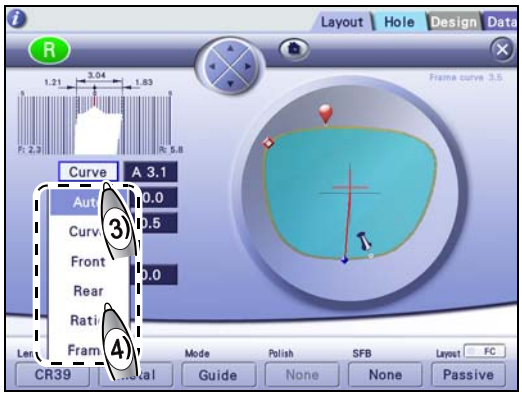
7

Shortly after processing started, blinks and processing pauses.

While checking the sectional view simulation area, correct the mini beveling settings.



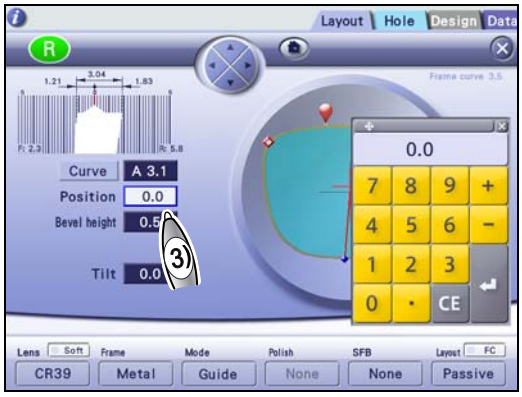
8 Set the curve as necessary.



1) Turn ◎ to rotate the sectional view position line.
2) Stop the line at the thickest lens edge position (large ◆).
3) ☞ Curve
4) Select the desired curve mode.

Auto	As the default, the computer-calculated bevel curve value (preceded by “A”) is displayed.
Curve	Pressing the entry field displays the numeric keypad. Enter the bevel curve value. Setting range: 0.1 to 12.0 Increment: 0.1
Front	Bevel curve based on the front surface of a lens
Rear	Bevel curve based on the rear surface of a lens
Ratio	Pressing the entry field displays the pop-up menu. Select the desired ratio. Ratio: 7:3 / 6:4 / 5:5 / 4:6 / 3:7
Frame	Bevel curve based on the frame curve

9 Change the entire bevel position as necessary.



1) Turn ◎ to rotate the sectional view position line.
2) Stop the line at the thinnest lens edge position (small ◆).
3) ☞ [Position] field

➔ Amount by which the bevel position is moved

Negative value	Moves the bevel position toward the lens front surface.
Positive value	Moves the bevel position toward the lens rear surface.

Ex.— Entering “-0.4” with the numeric keypad displays “←0.4” in the Position field and moves the bevel position toward the lens front surface by 0.4 mm.

The arrow ← before the value indicates that the bevel is moved toward the lens front surface, while → indicates that the bevel is moved toward the rear surface.

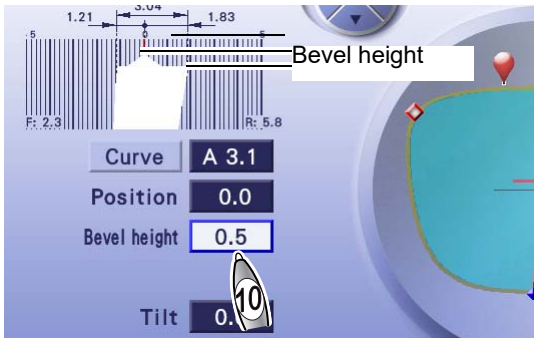
Ex.— Curve: 5.0 Position: ←0.4

The entire bevel whose curve value is 5.0 is moved toward the lens front surface by 0.4 mm.

4) To prevent the bevel from coming off the lens edge, change the bevel position while checking the bevel sectional view at the thinnest lens edge position (small ◆).

10 Change the entire bevel height as necessary.

[Bevel height] field



Height	
Setting range	0.4 to 0.7 mm
Increment	0.1 mm

11 Turn to rotate the sectional view position line to check the bevel sectional view. Repeat Steps 8 to 10 until the desired bevel sectional view is obtained.

12

Processing restarts.

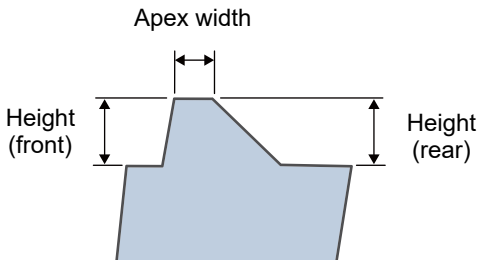
13 When processing is complete, remove the lens.

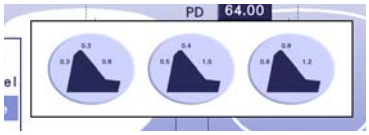
"3.7.2 Removing lenses" (page 81)

When the opposite lens is processed successively, the previous settings are displayed as the default values.

4.3.4 High base curve beveling

When the frame curve is large, lens insertion may be difficult with the normal bevel shape. High base curve beveling allows processing a lens with the desired bevel position, height, and width so that it can be inserted into the frame easily.





- The default of high base curve beveling can be selected from the three settings as shown to the right. See F-11*" Hi-curve-Preset 1" (page 185)* to F-13*" Hi-curve-Preset 3" (page 186)*.
- Set the layout mode to [Passive]. When it is set to [Active] or [Bifocal], bevel shape is automatically set to [Normal].
- Safety beveling or polishing is not available. When [EX] is selected for the processing mode. bevel shape is automatically set to [Normal].
- The front and rear edges of the lens are beveled separately. High base curve beveling takes longer than normal beveling.

High base curve lens measurement

- When a high base curve lens is processed with high minus power, the lens and feeler may come into contact with each other during normal measurement operation, and either may be damaged. To avoid that, measurement operation differs for high base curve beveling.

  A-05*" Perform high-curve lens measurement" (page 175)*

- Normal measurement is set for Polyca., Trivex, Acrylic, and Urethane by default. Even for such lens materials, when processing a high base curve lens with high minus power, set the "Perform high-curve lens measurement" parameter to [Perform]. However, since the lens is measured again after roughing, the processing waste on the lens may cause incorrect measurement or damage to the LMU (surface measurement feeler).
  In this case, stop processing when roughing is complete, remove the processing waste, then restart processing.

1 Select the lens material.

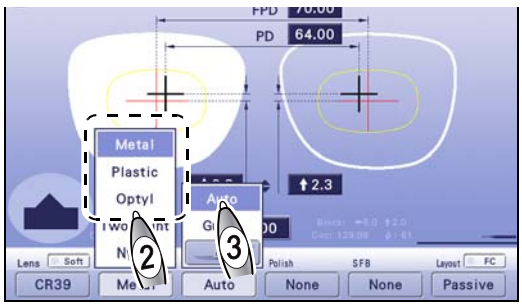
"4.1.1 Lens material selection"

2 Select the frame type.

[Frame] → Metal / Plastic / Optyl

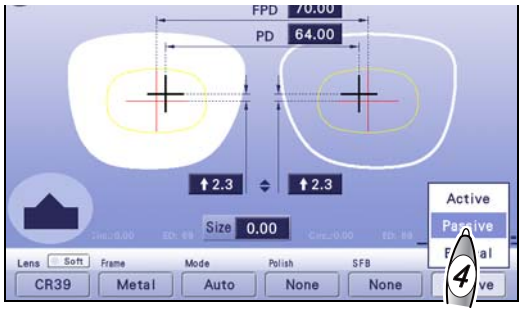
3 Select the processing mode.

[Mode] → Auto / Guide



4 Select the layout mode.

[Layout] → Passive

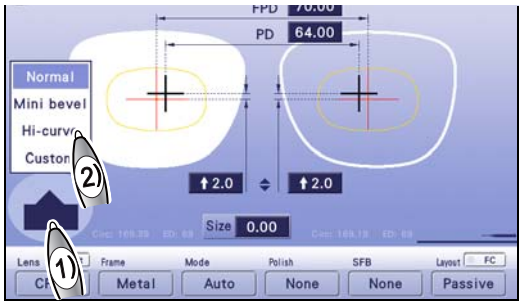


5 Select high base curve beveling.

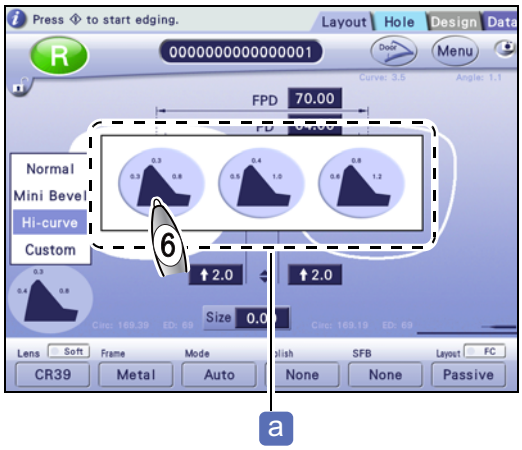
1) Processing image

2) Hi-curve

→Pop-up menu



6 Select the default of high base curve beveling from the three settings a.



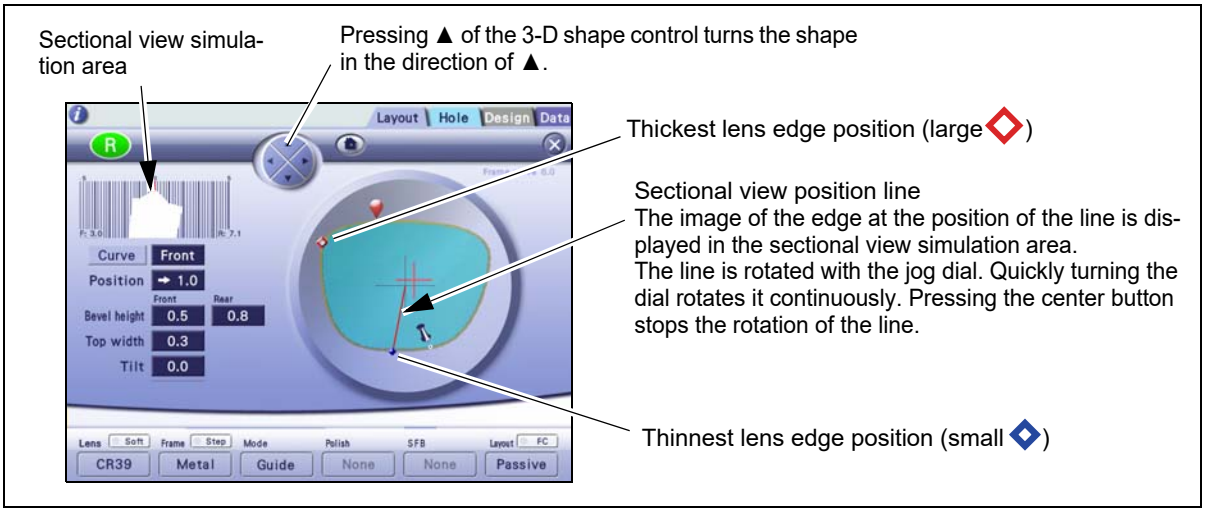
7 Set the other processing conditions as necessary.

- When Auto is selected in Step 3, the subsequent procedure is the same as Steps 5 to 7 in *"4.3.1 Auto beveling" (page 98)*.
- When Guide is selected in Step 3, perform Steps 8 to 14.

8

Shortly after processing started, blinks and processing pauses.

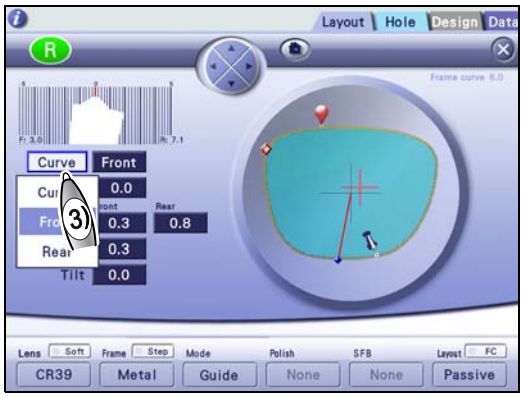
While checking the sectional view simulation area, correct the high base curve beveling settings.



9 Set the curve as necessary.

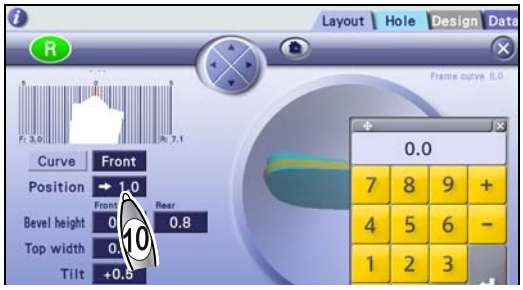
- Select the curve from among [Front], [Rear], and [Curve]. However, when the lens front or rear curve value exceeds 12, [Front] or [Rear] cannot be selected.
- It is also possible to set a curve value that causes the bevel to come off the lens edge. Be sure to set the value while checking the bevel sectional view.

1) Turn to rotate the sectional view position line.
2) Stop the line at the thickest lens edge position (large ◇).
3) Curve
4) Curve / Front / Rear



Curve	Pressing the entry field displays the numeric keypad. Enter the bevel curve value. Setting range: 0.1 to 12.0 Increment: 0.1
Front	Bevel curve based on the front surface of a lens
Rear	Bevel curve based on the rear surface of a lens

10 Change the entire bevel position as necessary.



1) Turn to rotate the sectional view position line.

2) Stop the line at the thinnest lens edge position (small ◆).

3) [Position] field

→ Amount by which the bevel position is moved

Negative value	Moves the bevel position toward the lens front surface.
Positive value	Moves the bevel position toward the lens rear surface.

Ex.— Entering “-0.4” with the numeric keypad displays “←0.4” in the [Position] field and moves the bevel position toward the lens front surface by 0.4 mm.

The arrow ← before the value indicates that the bevel is moved toward the lens front surface, while → indicates that the bevel is moved toward the rear surface.

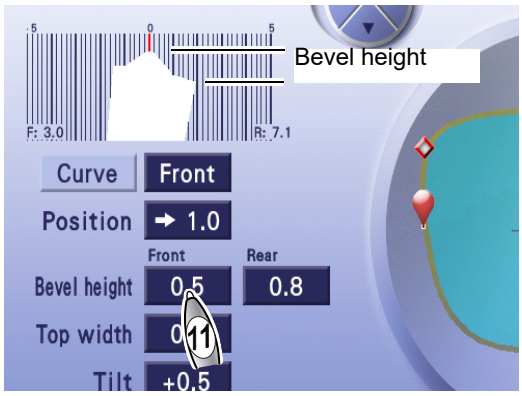
4) To prevent the bevel from coming off the lens edge, change the bevel position while checking the bevel sectional view at the thinnest lens edge position (small ◆).

11 Change the entire bevel height as necessary.

[Bevel height] field

→

Front height	
Setting range	0.0 to 1.8 mm
Increment	0.1 mm
Rear height	
Setting range	0.0 to 3.0 mm
Increment	0.1 mm



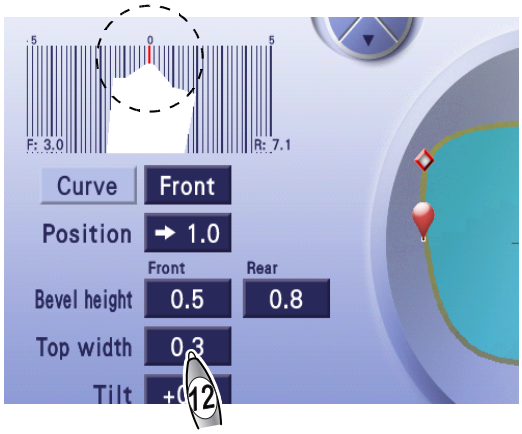
12 Change the entire bevel apex width as necessary.

[Top width] field

→

Apex width	
Setting range	0.0 to 3.0 mm
Increment	0.1 mm

Bevel apex width



- When changing the tilt amount

  In high base curve beveling, the tilt function is enabled regardless of the setting of the “Use tilt function in bevel/groove guide mode” parameter. Change the tilt amount.

  “4.5 Tilt Function” (page 116)

13 

Processing restarts.

14 When processing is complete, remove the lens.

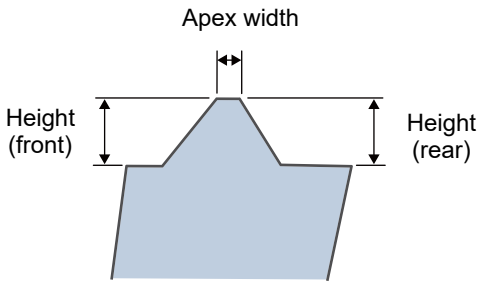
“3.7.2 Removing lenses” (page 81)

When the opposite lens is processed successively, the previous settings are displayed as the default values.

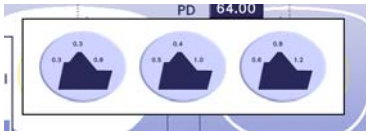
4.3.5 Custom beveling

Depending on the frame type, particularly a plastic one, inserting a lens may be difficult with the normal bevel shape because the bevel height does not match the frame.

Custom beveling allows processing a lens with the desired bevel height (front and rear) and bevel apex width so that it can be inserted into the frame easily.



- The default of custom beveling can be selected from the three settings as shown to the right. See F-14*" Custom-Preset 1" (page 186)* to F-16*" Custom-Preset 3" (page 186)*.
- Set the layout mode to [Passive]. Safety beveling or polishing is not available.
- When [Active], [Bifocal], and [EX] are selected, bevel shape is automatically set to [Normal].
- The front and rear edges of the lens are beveled separately. Custom beveling takes longer than normal beveling.



1 Select the lens material.

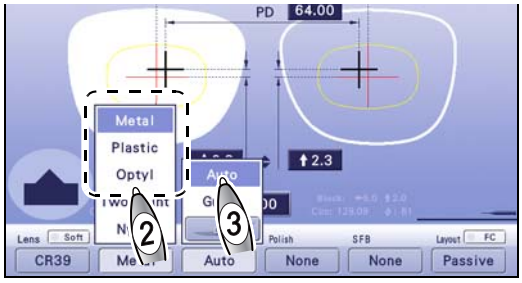
"4.1.1 Lens material selection"

2 Select the frame type.

[Frame] → Metal / Plastic / Optyl

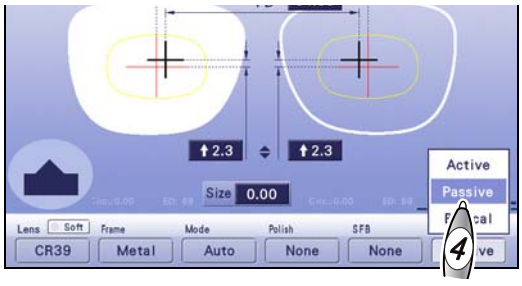
3 Select the processing mode.

[Mode] → Auto / Guide



4 Select the layout mode.

[Layout] → Passive

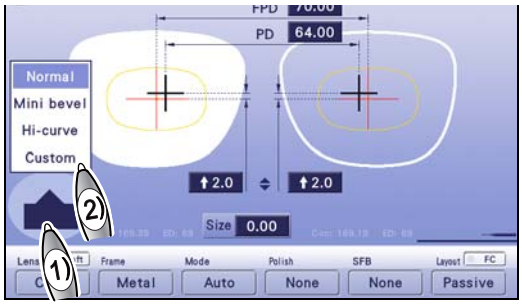


5 Select custom beveling.

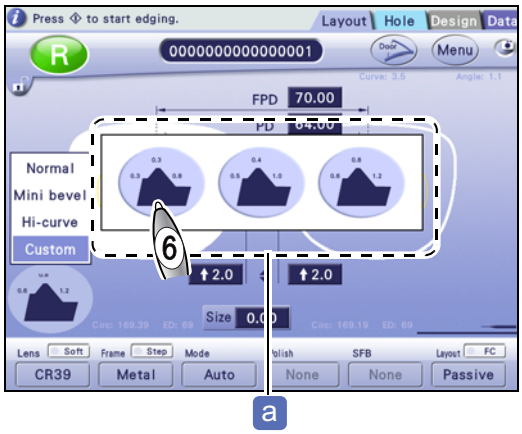
1) Processing image

2) Custom

→Pop-up menu



6 Select the default of custom beveling from the three settings a.



7 Set the other processing conditions as necessary.

To change the bevel position, height, and apex width, set the processing mode to [Guide].

- When Auto is selected in Step 3

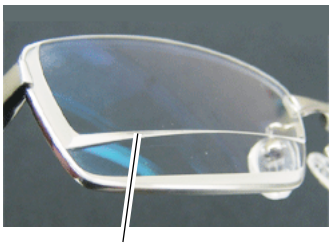
  ❖ The subsequent procedure is the same as Steps 5 to 7 in *"4.3.1 Auto beveling" (page 98)*.

- When Guide is selected in Step 3, the subsequent procedure is the same as Steps 9 to 14 in *"4.3.4 High base curve beveling" (page 108)*.

4.4 EX Lens Processing (Beveling)

When processing EX lenses, be sure to set the processing mode to [EX].

With other settings, a lens cannot be measured because the feeler of the feeler unit gets caught on the level difference on the front surface.



Level difference of EX lens

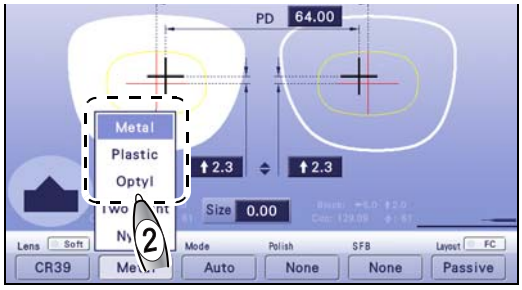
- For EX lenses, guide beveling with rear-based curve is automatically performed.
- If cataract lenses with a large protruding part on the front surface cannot be processed in guide processing mode (rear-based curve) due to a lens measurement error, use EX lens processing mode.

1 Select the lens material.

"4.1.1 Lens material selection"

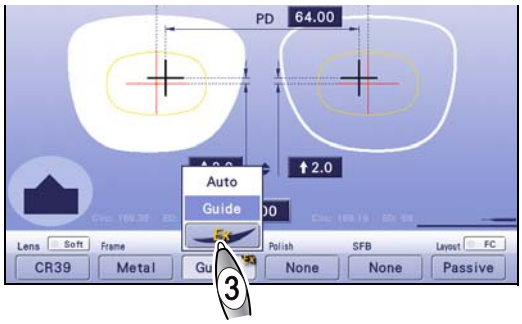
2 Select the frame type.

[Frame] → Metal / Plastic / Optyl



3 Select the processing mode.

[Mode] → Ex



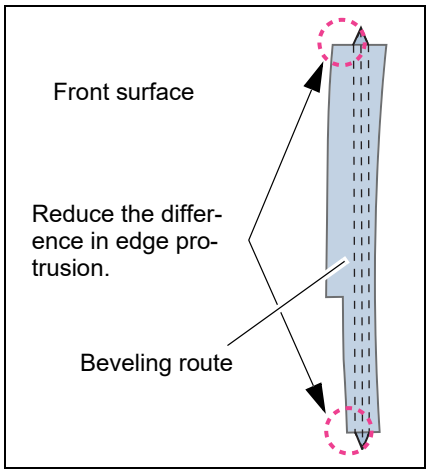
4 Set the other processing conditions as necessary.

5 The subsequent procedure is the same as Steps 5 to 11 in *"4.3.2 Guide beveling" (page 100)*. Note that the curve mode is automatically set to [Rear].

4.5 Tilt Function

■ When a lens has an extreme difference in thickness between the top and bottom edges such as an EX lens, the appearance of the glasses may be impaired. Tilt processing allows processing a lens with the beveling or grooving route tilted so that the difference in lens edge protrusion from the frame is reduced and the appearance is improved.

- As shown to the right, an EX lens has a thick top edge and a thin bottom edge. If such a lens is processed in normal mode, a difference in lens edge protrusion from the frame between the top and bottom edges occurs, impairing the appearance of the glasses.
- The tilt function reduces the difference in edge protrusion and processes a lens with an enhanced appearance by shifting the beveling (or grooving) route toward the rear surface on the thin bottom edge and toward the front surface on the thick top edge.



■ This section describes the tilt function in guide beveling. The procedure is the same for guide grooving.

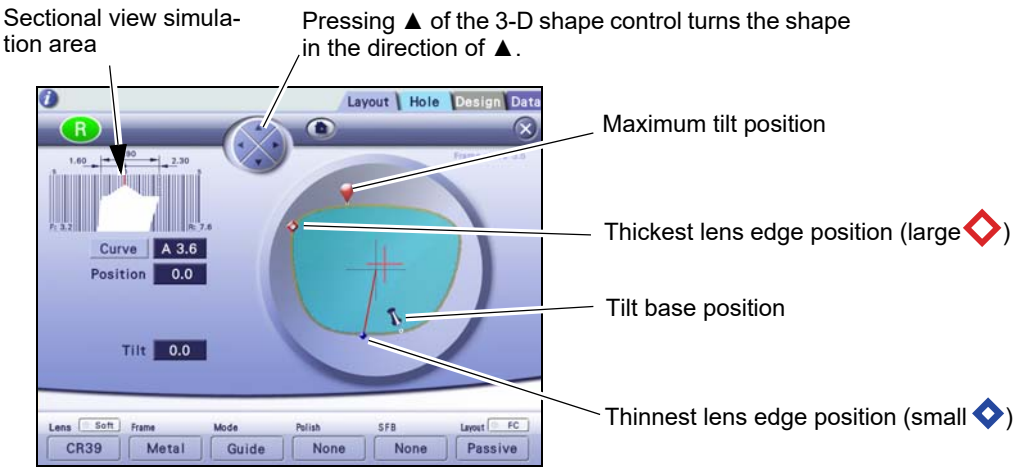
Select “Use” for the parameter A-06*“ Use tilt function in bevel/groove guide mode” (page 175)* on the General screen.

1 Perform Steps 1 to 5 in *“4.3.2 Guide beveling” (page 100)*.

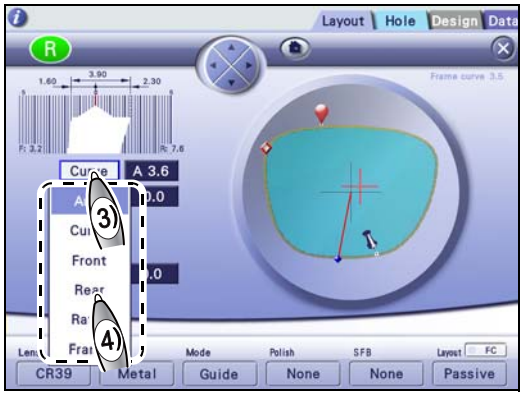
2

Shortly after processing started, blinks and processing pauses.

While checking the sectional view simulation area, correct the settings of tilt processing.



3 Set the curve as necessary.



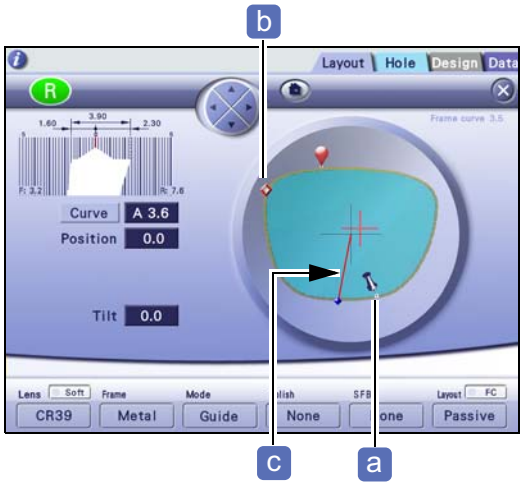
1) Turn ◎ to rotate the sectional view position line.
2) Stop the line at the thickest lens edge position (large ◇).
3) Curve
4) Select the desired curve mode.

"4.3.2 Guide beveling"

Note

For tilt processing, the bevel position is adjusted according to the spherical curve value of the lens. Therefore, if a curve value with "A" is set, the actual tilt amount may differ from the set tilt amount.

4 Set the tilt base position.



1) Drag the tilt base handle a to the point diagonally opposite the thickest lens edge position (large ◇) b to set the tilt base position (that is the base position for tilting the beveling route).

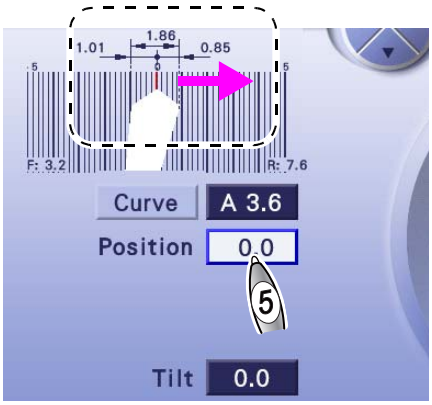
   When the tilt base position is confirmed, the sectional view position line is moved to the maximum tilt position (where the bevel position is most largely shifted).

2) Turn ◎ to rotate the sectional view position line c.
3) Stop the line around the tilt base position.

   The image of the edge around the tilt base position is displayed in the sectional view simulation area.

5 While checking the sectional view simulation area, set the bevel position for the tilt base position.

Positive value



[Position] field

→ Amount by which the bevel position is moved

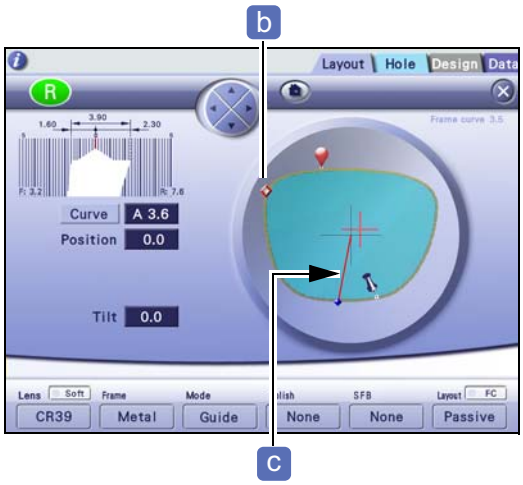
Negative value	Moves the bevel position toward the lens front surface.
Positive value	Moves the bevel position toward the lens rear surface.

6 Set the maximum tilt position.

1) Turn to rotate the sectional view position line c.

2) Stop the line at the maximum tilt position (around the thickest lens edge position b).

The image of the edge around the maximum tilt position is displayed in the sectional view simulation area.

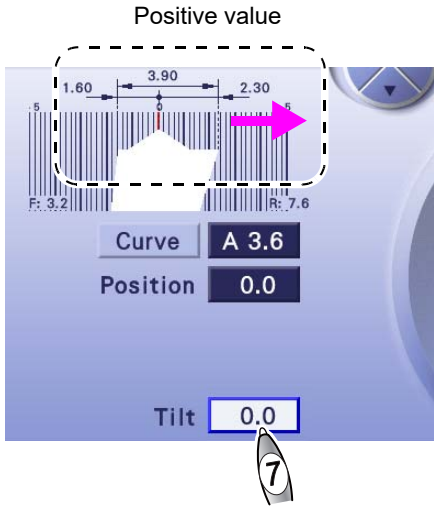


7 While checking the sectional view simulation area, set the bevel position for the maximum tilt position.

[Tilt] field

→ Amount by which the bevel position is moved

Negative value	Moves the bevel position toward the lens front surface.
Positive value	Moves the bevel position toward the lens rear surface.



8 Check the entire bevel position.

Turn to rotate the sectional view position line to check whether the bevel at the thinnest lens edge position (small ◆) does not extend off of the edge and the other bevel positions are also appropriate.

9 Repeat Steps 5 to 8 until the desired bevel position is obtained.

10

Processing restarts.

11 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

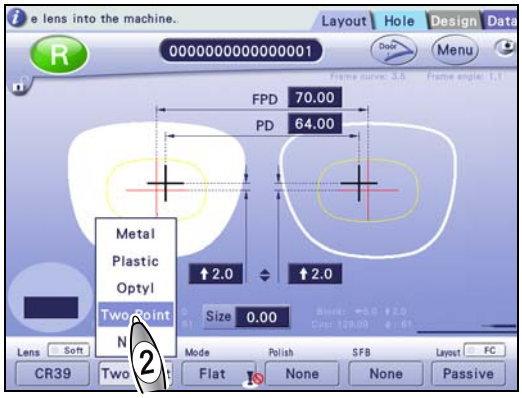
4.6 Flat Edging

1 Select the lens material.

"4.1.1 Lens material selection"

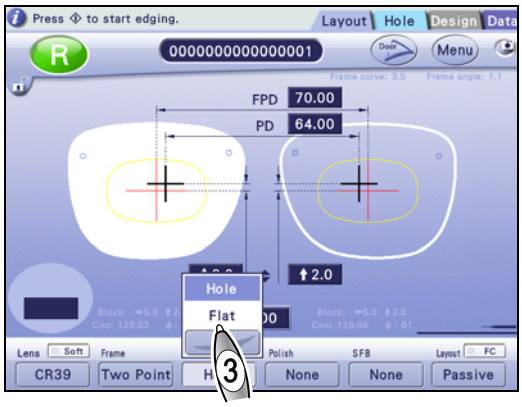
2 Select the frame type.

[Frame] → Two Point



3 Select the processing mode.

[Mode] → Flat



4 Set the other processing conditions as necessary.

Note

When the size is changed with [Two Point] selected, FPD is automatically corrected so that DBL remains the same. For [Nylor], FPD is not corrected.

5 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

6

The processing chamber door closes automatically, then processing starts.

7 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

4.7 Grooving

Contents described in this section

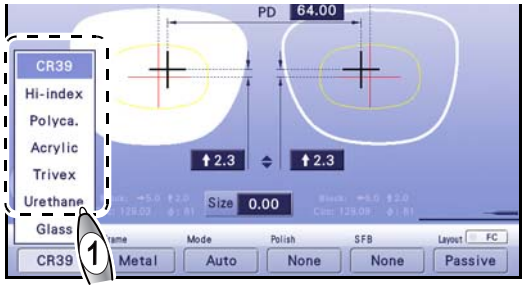
4.7.1 Auto grooving

Auto grooving allows the groove curve and position to be automatically calculated by computer.

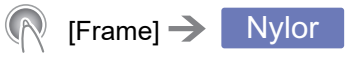
1 Select the lens material.

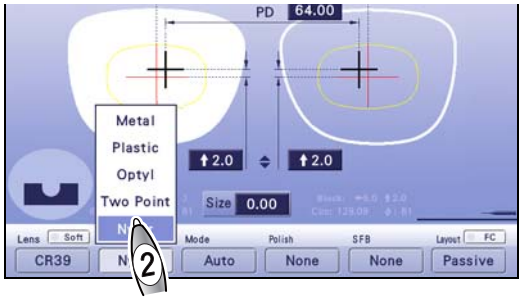
Grooving is unavailable for glass lenses.

"4.1.1 Lens material selection"



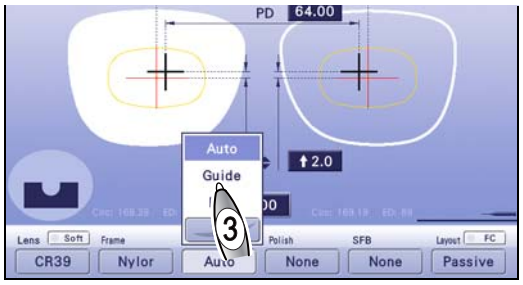
2 Select the frame type.





3 Select the processing mode.

4 Set the other processing conditions as necessary.



5 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

6 

The processing chamber door closes automatically, then processing starts.

7 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

4.7.2 Guide grooving

For guide grooving, the groove curve and position are entered manually.

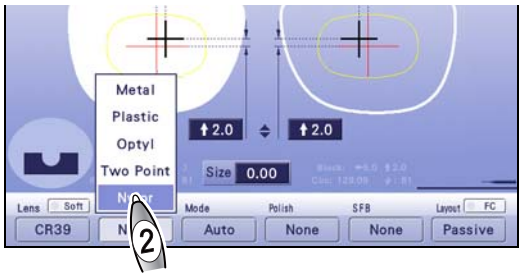
1 Select the lens material.

Grooving is unavailable for glass lenses.

"4.1.1 Lens material selection"

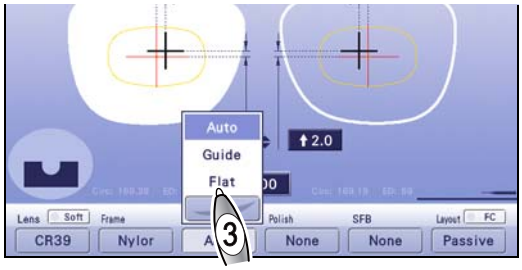
2 Select the frame type.

[Frame] → Nylor



3 Select the processing mode.

[Mode] → Guide



4 Set the other processing conditions as necessary.

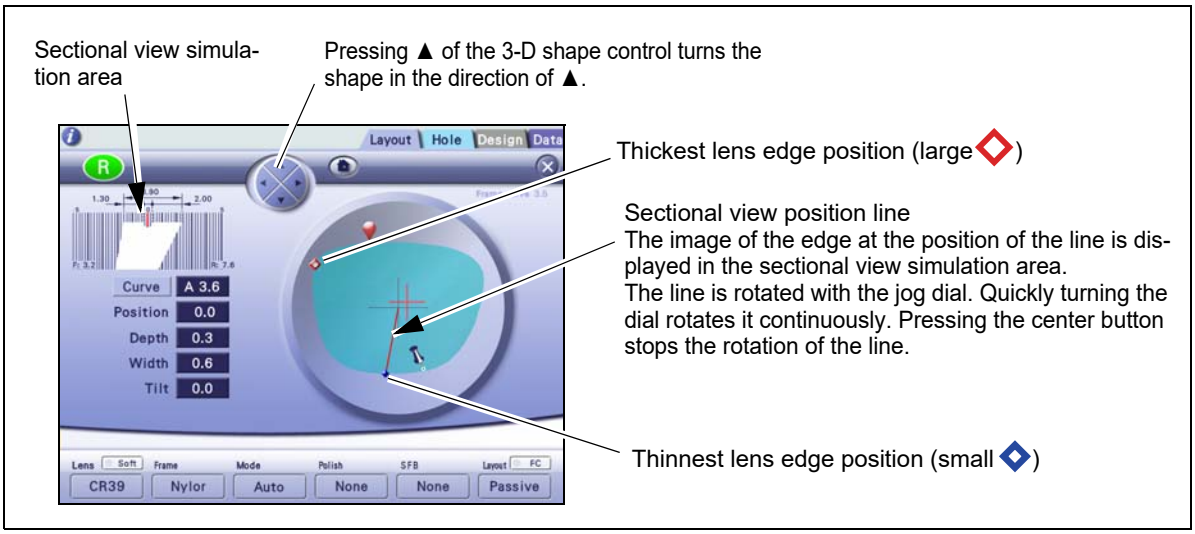
5 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

6

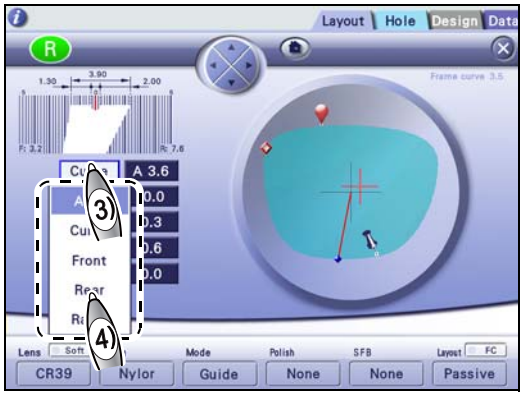
Shortly after processing started, START blinks and processing pauses.

While checking the sectional view simulation area, correct the settings of grooving.

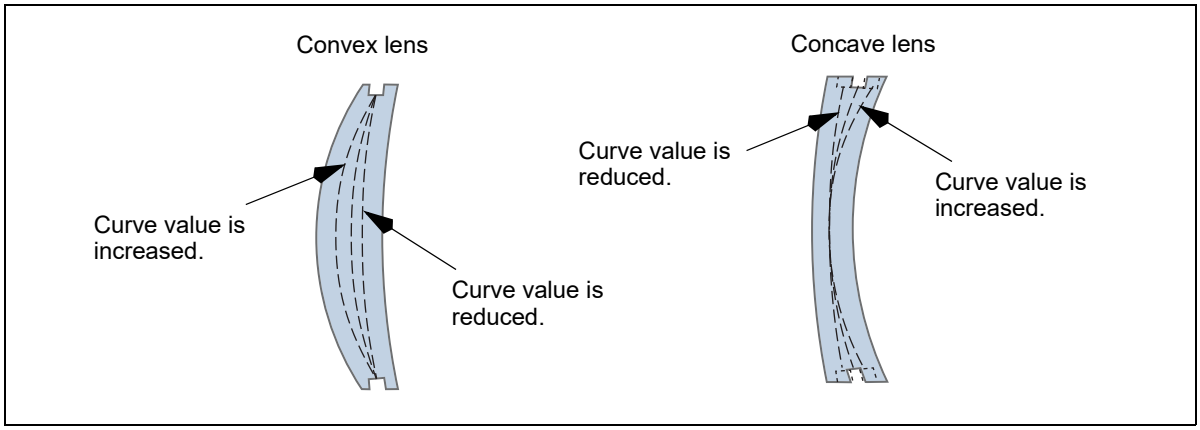


7 Set the curve as necessary.

1) Turn  to rotate the sectional view position line.
2) Stop the line at the thickest lens edge position (large ◇).
3)  Curve
4) Select the desired curve mode.



Auto	As the default, the computer-calculated groove curve value (preceded by “A”) is displayed.
Curve	Pressing the entry field displays the numeric keypad. Enter the groove curve value. Setting range: 0.1 to 20.0 Increment: 0.1
Front	Groove curve based on the front surface of a lens
Rear	Groove curve based on the rear surface of a lens
Ratio	Pressing the entry field displays the pop-up menu. Select the desired ratio. Ratio: 7:3 / 6:4 / 5:5 / 4:6 / 3:7



Note

- The curve value preceded by “A” is the same as that calculated by computer.
- When the lens front or rear curve value exceeds 12, [Front] or [Rear] cannot be selected for [Curve].

Optimum processing mode for each lens type in grooving

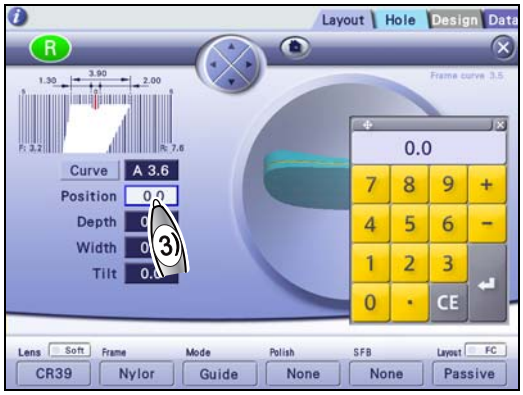
Processing mode / Lens type	Auto	Guide			
		Curve	Front	Rear	Ratio
Single vision lens	◎	◎	–	–	○*a
Progressive	◎	◎	–	–	–
Bifocal	◎	◎	–	–	–
EX	–	–	–	◎	–

◎: Optimum mode (recommended mode)

○: Available mode

*a: Select the ratio using the following as a guide.
Select 5:5 for a plus single vision lens with low power.
Select 4:6 or 5:5 for a plus single vision lens with medium or high power, and for a minus single vision lens with low power.
Select 3:7 or 4:6 for a minus single vision lens with medium power.
Select 3:7 for a minus single vision lens with high power.

8 Change the entire groove position as necessary.



1) Turn to rotate the sectional view position line.

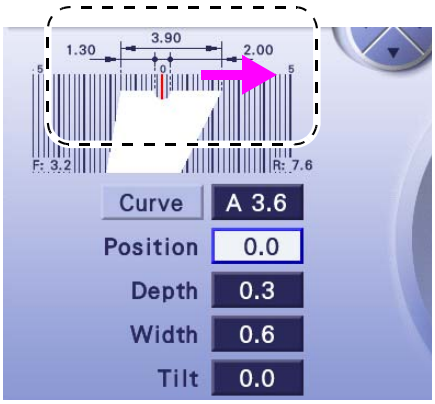
2) Stop the line at the thinnest lens edge position (small ◆).

3) [Position] field

→ Amount by which the groove position is moved

Negative value	Moves the groove position toward the lens front surface.
Positive value	Moves the groove position toward the lens rear surface.

Positive value



Ex.— Entering “-0.4” with the numeric keypad displays “←0.4” in the [Position] field and moves the groove position toward the lens front surface by 0.4 mm.

The arrow ← before the value indicates that the bevel is moved toward the lens front surface, while → indicates that the bevel is moved toward the rear surface.

Ex.— Curve: 5.0 Position: ←0.4

The entire groove whose curve value is 5.0 is moved toward the lens front surface by 0.4 mm.

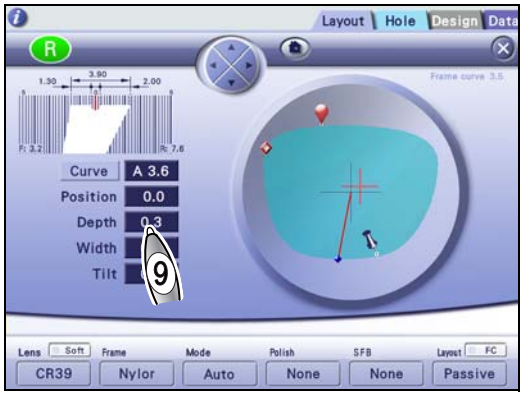
4) To prevent the groove from coming off the lens edge, change the groove position while checking the groove sectional view at the thinnest lens edge position (small ◆).

9 Change the groove depth as necessary.

[Depth] field

→

Groove depth	
Setting range	0.0 to 0.8 mm
Increment	0.1 mm

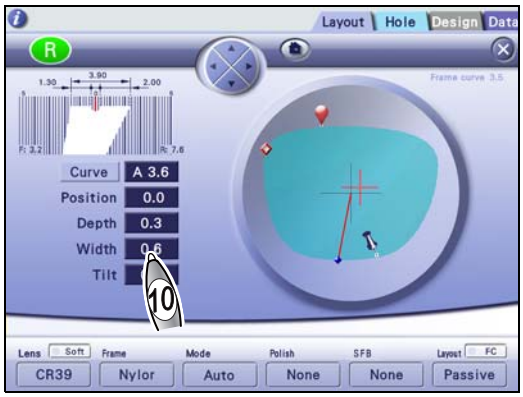


10 Change the groove width as necessary.

[Width] field

→

Groove width	
Setting range	0.6 to 1.2 mm
Increment	0.1 mm



11 Turn ◎ to rotate the sectional view position line to check the groove sectional view.

Repeat Steps 7 to 11 until the desired groove sectional view is obtained.

Note

- When the groove position and such are changed on the simulation screen, the changed values are copied for the opposite shape. However, if the settings related to the bevel or groove position are included in the shape data received from the server or blocker, the received settings are protected, and the changed values are not copied automatically. Edit the data of the opposite shape in the same manner as necessary.
- When the [Curve] or [Position] field is selected with the center button of the jog dial, tapping the edge of the 3-D shape displays the bevel sectional view at the tapped position.

12

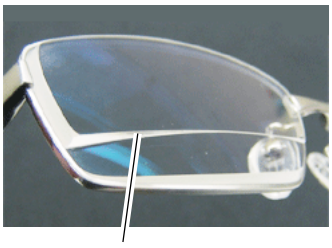
Processing restarts.

13 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

4.8 EX Lens Processing (Grooving)

When processing EX lenses, be sure to set the processing mode to [EX]. With other settings, a lens cannot be measured because the feeler of the feeler unit gets caught on the level difference on the front surface.



Level difference of EX lens

- Grooving is unavailable for glass lenses.
- For EX lenses, guide beveling with rear-based curve is automatically performed.
- If cataract lenses with a large protruding part on the front surface cannot be processed in guide processing mode (rear-based curve) due to a lens measurement error, use EX lens processing mode.

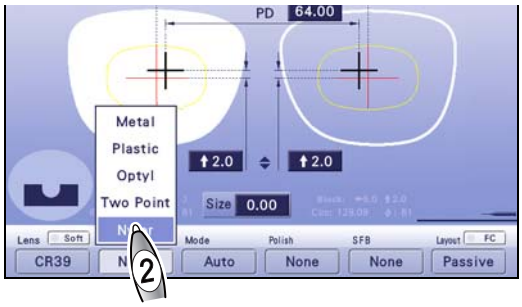
1 Select the lens material.

Grooving is unavailable for glass lenses.

"4.1.1 Lens material selection"

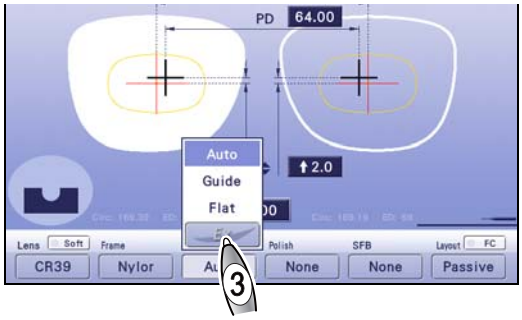
2 Select the frame type.

[Frame] → Nylor



3 Select the processing mode.

[Mode] → Ex



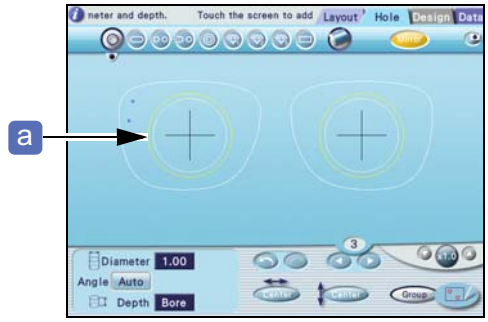
4 Set the other processing conditions as necessary.

5 The subsequent procedure is the same as Steps 5 to 13 in *"4.7.2 Guide grooving" (page 121)*. Note that the curve mode is automatically set to [Rear].

4.9 Drilling

Contents described in this section

- Drilling is unavailable for glass lenses.
- Drilling is unavailable when the layout mode is set to [Active].
- The jog dial can also be used to select items and change values.
- Holes cannot be set inside the the yellow circle (hole setting invalid area) a .



4.9.1 Hole setting

1 Select the lens material.

Drilling is unavailable for glass lenses.

"4.1.1 Lens material selection" (page 86)

2 Select the frame type.

[Frame] → Two Point

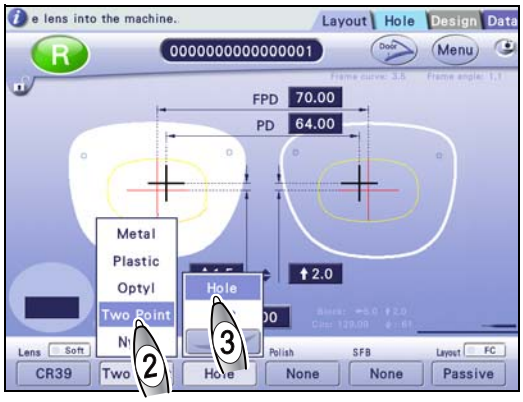
* The other frame types can be selected.

3 Select the processing mode.

[Mode] → Hole

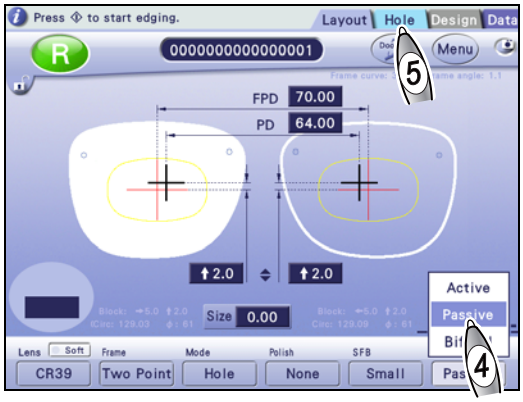
When [Flat] is selected, drilling is not performed.

"● Processing mode for shape with hole data" (page 88)



4 Select the layout mode.

[Layout] → Passive



5 [Hole]

→ Hole edit screen

6 Set a hole.

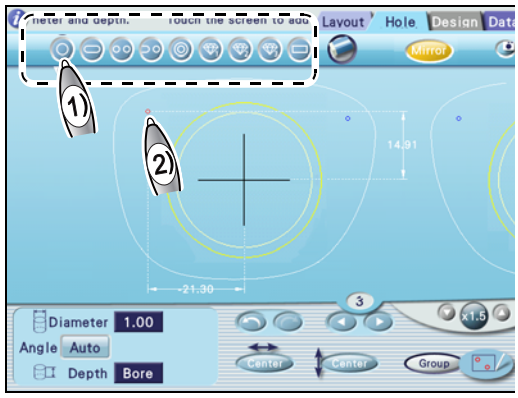
1) [Hole type]

Select the hole type to be added. The button turns gray when selected.

2) Specify the approximate hole position with the touch pen. The hole is displayed in red at the specified position.

The hole is mirrored to the opposite lens, which is displayed in light blue.

A maximum of 64 holes can be specified for both lenses.



7 Adjust the hole position.

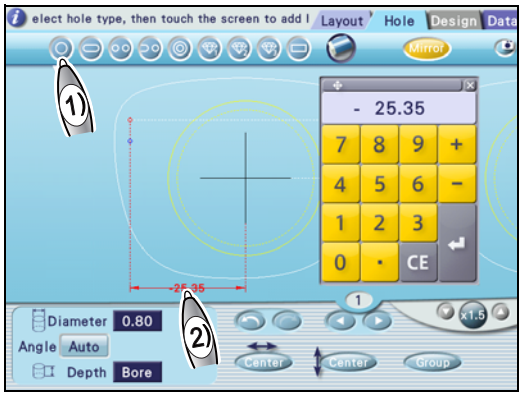
1) Press the hole type button that was pressed in Step 6 again.

The coordinates of the selected hole (red) position are indicated by the dimension lines, and the hole becomes editable.

2) Press the value of the X coordinate (horizontal position).

The value turns red.

→

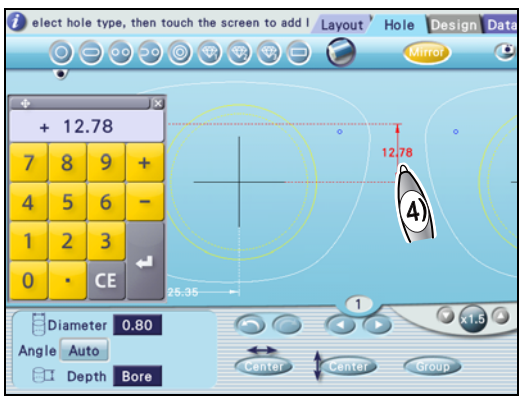


3) Enter the value of the X coordinate (horizontal position).

4) Press the value of the Y coordinate (vertical position).

The value turns red.

→



5) Enter the value of the Y coordinate (vertical position).

6) For paired or notched holes, enter the distance between the holes or between the hole and notch as necessary.

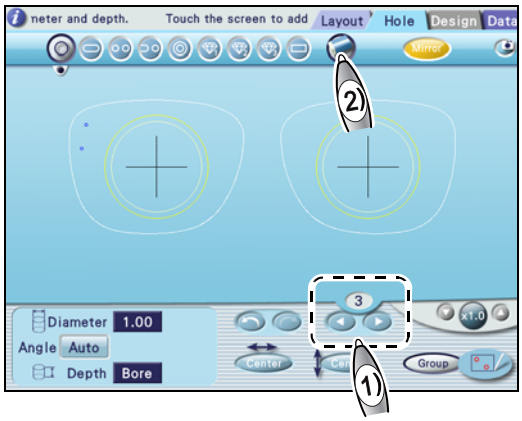
8 Edit the hole as necessary.

"4.9.2 Hole editing" (page 128)

9 The subsequent procedure is the same as Steps 4 to 7 in *"4.3.1 Auto beveling" (page 98)*.

4.9.2 Hole editing

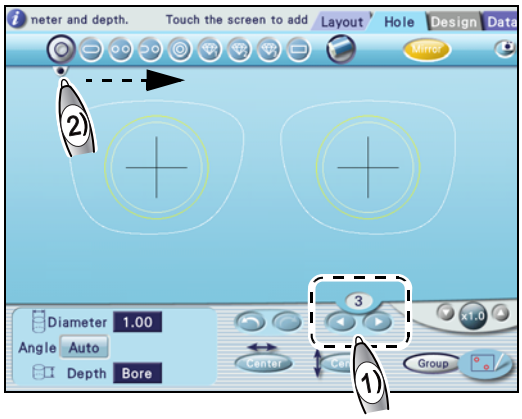
◆ Hole deletion



1) Select the hole to be deleted with / .
The hole is displayed in red.

2)
The selected hole is deleted.

◆ Hole type change



1) Select the hole whose type is to be changed. / .
The hole is displayed in red and the hole type indication is displayed.

2) Drag the hole type indication to the desired hole type button. However, paired, notched, or counterbored holes cannot be changed to another type.
The type of the selected hole is changed.

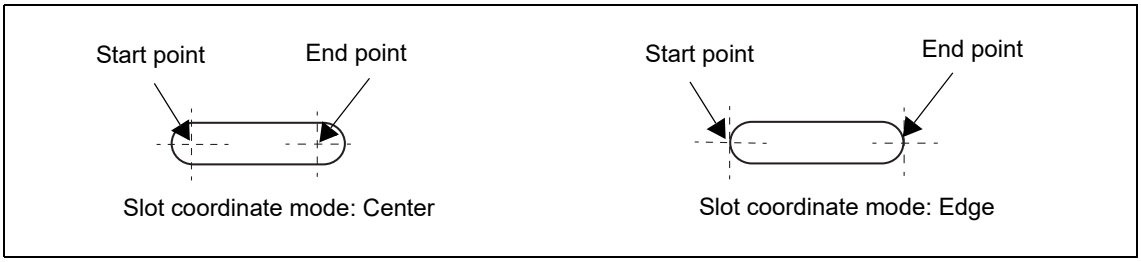
● Hole types

Button	Hole details and positioning	Hole size setting
 Simple hole	• Standard circular hole • Specify the hole center position.	Hole position, hole diameter, hole depth
 Slotted hole	• Rounded slotted hole • Specify the start and end points of the hole.	Start and end points, hole diameter (width), hole depth
 Paired holes	• Combination of two horizontal simple holes • Specify the center of the inside hole (closer to the frame center) and the distance between the paired holes.	Hole position, distance between the two holes, hole diameter, hole depth
 Notched holes	• Combination of a simple hole and notch • Specify the position of the simple hole and the distance between the hole and notch. The horizontal position of the notch on the edge side is automatically determined according to the shape.	Hole position, distance between the simple hole and notch, hole diameter, hole depth
 Counterbored hole	• Counterbored hole • Specify the diameter and depth individually for the hole and counterbore. Specify the hole center position.	Hole position, hole diameter, hole depth
 Jewel hole 1	• Hole for embedding a jewel. Set the “Jewel 1” parameter on the Grinding screen. • Specify the hole center position.	Hole position * Hole diameter and depth are set by the parameter.*a
 Jewel hole 2	• Hole for embedding a jewel. Set the “Jewel 2” parameter on the Grinding screen. • Specify the hole center position.	Hole position * Hole diameter and depth are set by the parameter.
 Jewel hole 3	• Hole for embedding a jewel. Set the “Jewel 3” parameter on the Grinding screen. • Specify the hole center position.	Hole position * Hole diameter and depth are set by the parameter.
 Rectangular hole	• Square-cornered slotted hole. • Specify the start and end points of the hole.	Start and end points, hole diameter (width), hole depth

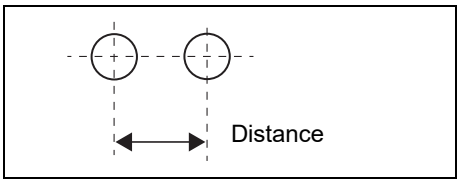
*a. *“4.9.5 Jewel hole size parameter setting” (page 136)*

◆ Hole position and size setting

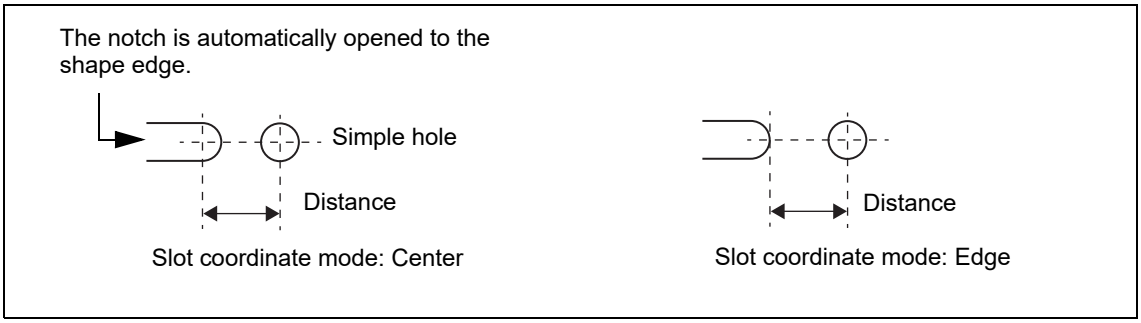
- To add or move a simple hole, specify the hole center position.
- To add or move a slotted hole, specify the start point by tapping with the touch pen, then drag and release it to the desired end point.
  The positions of the start and end points can be set to [Center] or [Edge] by the “Slot coordinate mode” parameter. A-12“ *Slot coordinate mode” (page 176)*



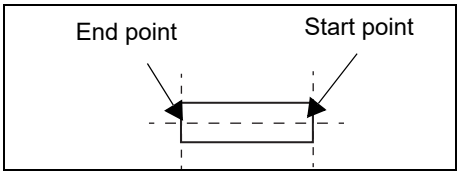
- To add or move paired holes, specify the position of the hole closer to the frame center. The distance between the two holes can be changed as well.



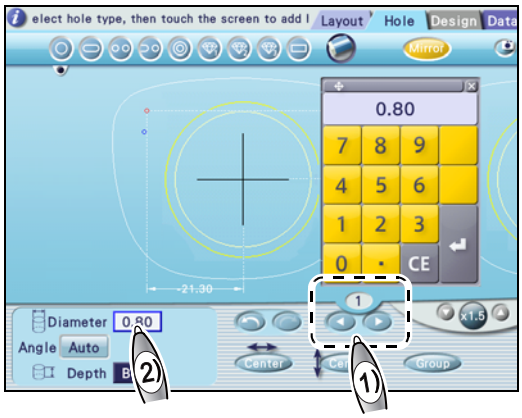
- To add or move notched holes, specify the simple hole position. The distance between the simple hole and notch can be changed as well.
  The positions of the start and end points can be set to [Center] or [Edge] by the “Slot coordinate mode” parameter. A-12“ *Slot coordinate mode” (page 176)*



- To add or move a counterbored hole, specify the hole center position.
- To add or move jewel holes 1 to 3, specify the hole center position. The hole diameter and depth are set by the parameter.
- To add or move a rectangular hole, specify the start point by tapping with the touch pen, then drag and release it to the desired end point.



◆ Hole diameter change



1)  /

Select the hole whose diameter is to be changed. It is displayed in red. The hole No. is displayed above the buttons.

2)  [Diameter] field

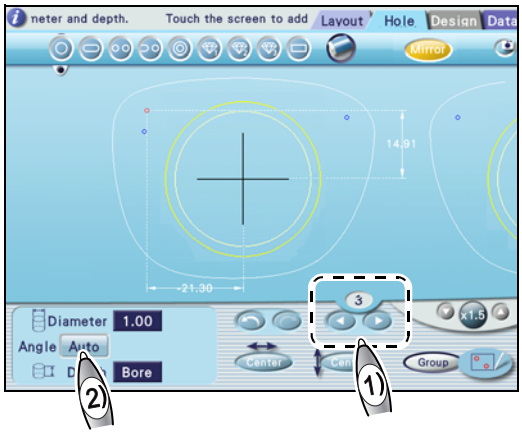
→ 

- The minimum diameter depends on the drill bit diameter.
- For jewel holes 1 to 3, no values are displayed.
- The drill bit diameter can be set by the parameter.

 C-08*" Hole-Drill bit diameter" (page 180)*

Diameter	
Setting range	0.80 to 10.00 mm
Increment	0.01 mm

◆ Hole angle setting



1)  /

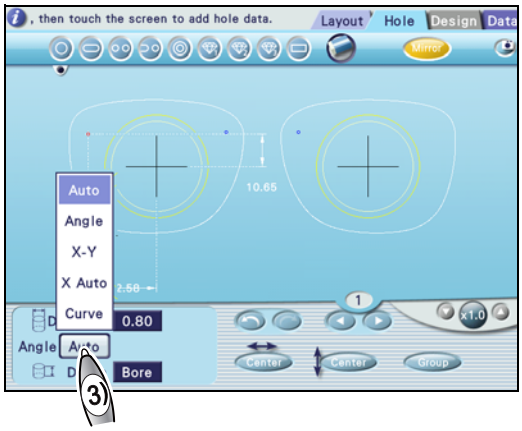
Select the hole whose angle is to be changed. It is displayed in red. The hole No. is displayed above the buttons.

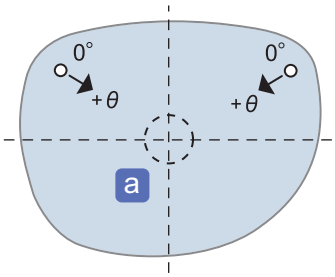
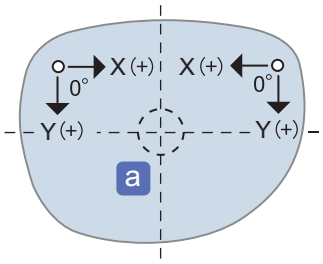
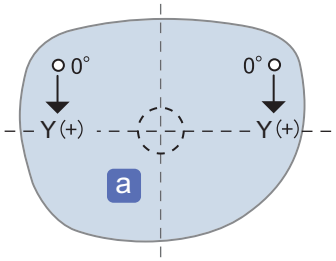
2)  [Angle]

→Pop-up menu

3) Select the angle type.

When any angle type other than [Auto] is displayed in the [Angle] field, pressing the field displays the numeric keypad, and the angle can be entered.



Auto	Drills a hole perpendicularly to the lens front surface.
Angle	Specifies the tilt of the hole axis. • With 0°, the hole axis becomes parallel to the chuck axis a . • Entering a positive value tilts the hole axis toward the chuck axis. 
X-Y	Specifies the tilts of the X axis and Y axis. • X axis: With the setting of “X: 0.0”, it becomes parallel to the chuck axis a . Entering a positive value tilts the hole axis toward the chuck axis. • Y axis: With the setting of “Y: 0.0”, it becomes parallel to the chuck axis. Entering a positive value tilts the hole axis toward the chuck axis. 
X Auto	Specifies the tilt of the Y axis. • X axis: It is perpendicular to the lens front. • Y axis: With the setting of “Y: 0.0”, it becomes parallel to the chuck axis a . Entering a positive value tilts the hole axis toward the chuck axis. 
Curve	Drills a hole perpendicularly according to the entered lens curve value.

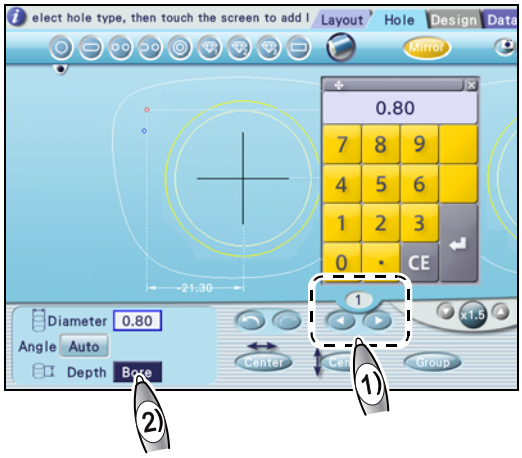
◆ Hole depth change

1)  /

Select the hole whose depth is to be changed. It is displayed in red. The hole No. is displayed above the buttons.

2)  [Depth] field

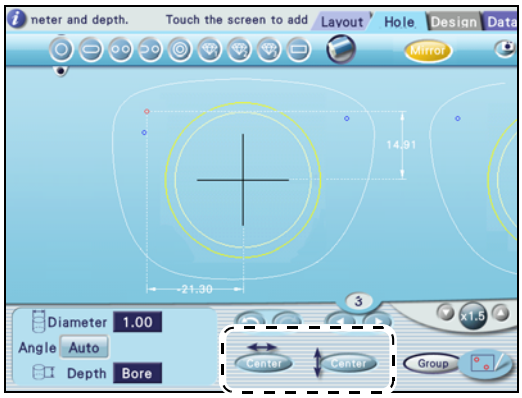
For a through hole, enter 0.0. For jewel holes 1 to 3, no values are displayed.



4.9.3 Hole position adjustment

● Hole reference position setting

- The reference position of the horizontal coordinate can be selected from three types: [Center], [B-Edge], and [H-Edge].
- The reference position of the vertical coordinate can be selected from two types: [Center] and [B-Edge].
- They can be changed for each hole.



- 

Horizontal reference position

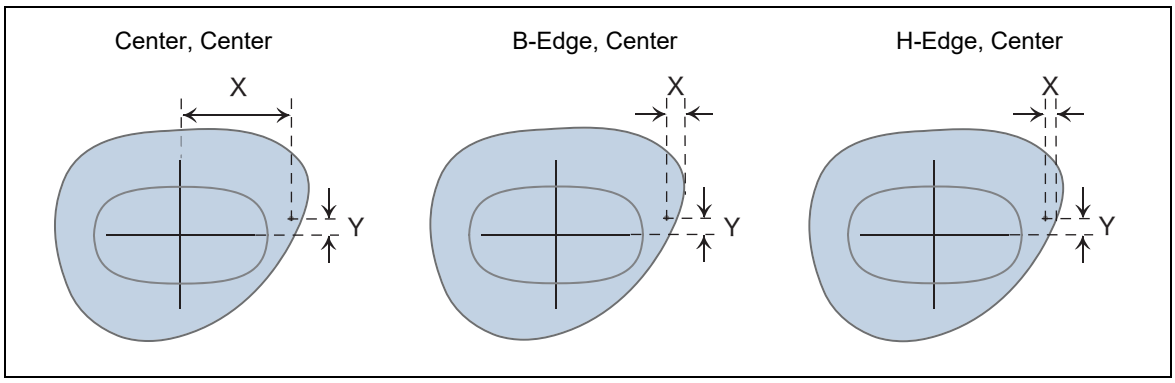
Center	Frame center
B-Edge	The widest point of the lens shape on the temporal side or nasal side
H-Edge	The temporal side or nasal side that is closest to the hole

- 

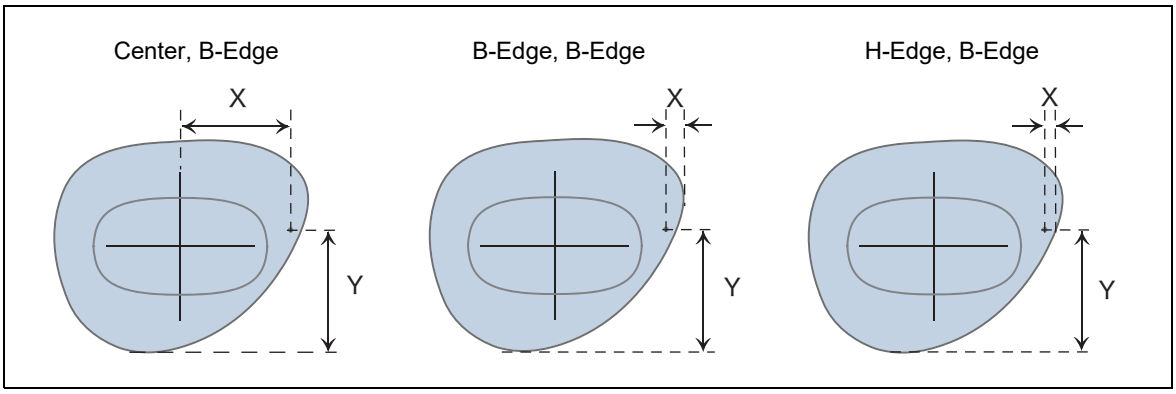
Vertical reference position

Center	Frame center
B-Edge	The lowest point on the lens shape

● When the vertical reference position is set to 



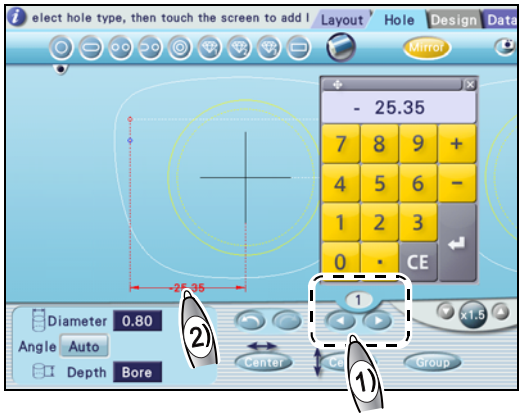
- When the vertical reference position is set to 



- Hole position change

The following two methods are available to change a hole position.

- Entering hole position coordinates with numeric key-pad

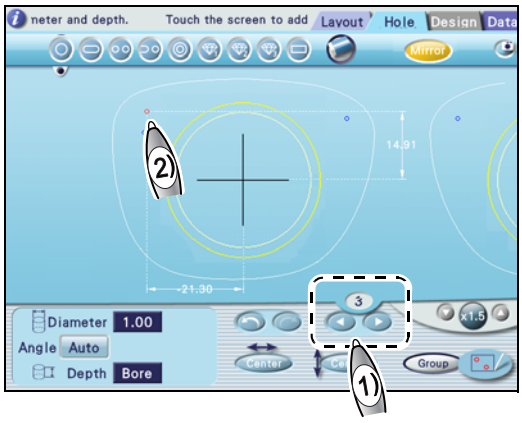


1) 

Select the hole to be moved. It is displayed in red. The hole No. is displayed above the buttons.

2) Press the coordinate value displayed on the shape.

- Dragging a hole to move its position



1) 

Select the hole to be moved. It is displayed in red. The hole No. is displayed above the buttons.

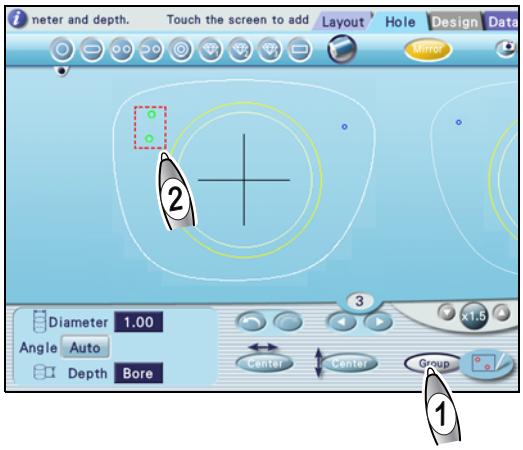
2) Drag the selected hole to the desired position.

4.9.4 Grouping and mirror function

◆ Grouping

To drill two parallel holes (at the same hole angle), group them.

- Up to two holes can be grouped.
- Paired, notched, or counterbored holes are automatically set as a group.



1 

2 Enclose the holes to be grouped by dragging the touch pen.

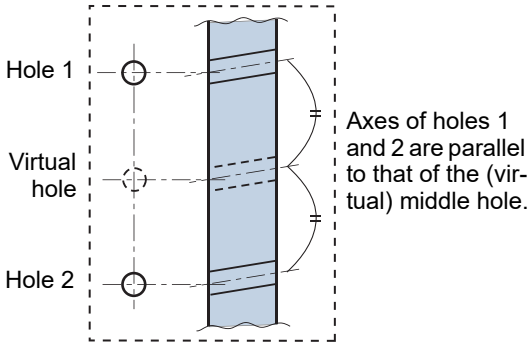
The grouped holes are drilled parallel to each other.

The grouped holes are drilled parallel to the (virtual) middle hole.

Note that, when grouped holes are on both right and left lenses, the holes for each lens are grouped separately.

For the tilt angle of the grouped holes, only [Auto], [Angle], or [Curve] can be selected.

Grouped holes

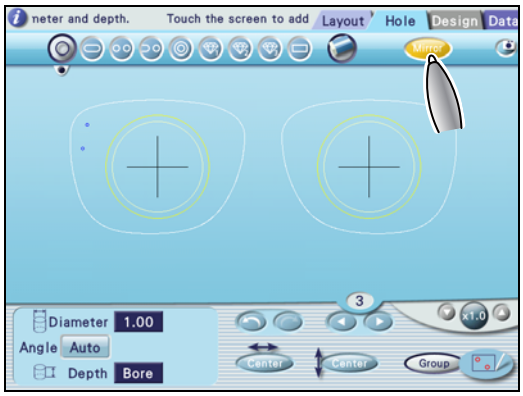


◆ Mirror function

When a hole is added, the mirror function is enabled. The added hole is automatically mirrored to the opposite shape.

Each press of Mirror changes the indication of the button in the order of Mirror, R, L, and Mirror. When the indication of the button is “R” or “L”, the hole is added only to the right or left shape.

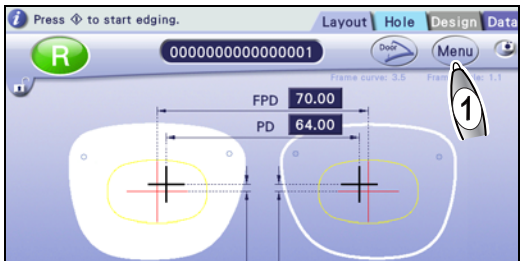
If the hole created with the mirror function is deleted or moved, the change is applied to the hole on the opposite shape.



4.9.5 Jewel hole size parameter setting

1 Menu

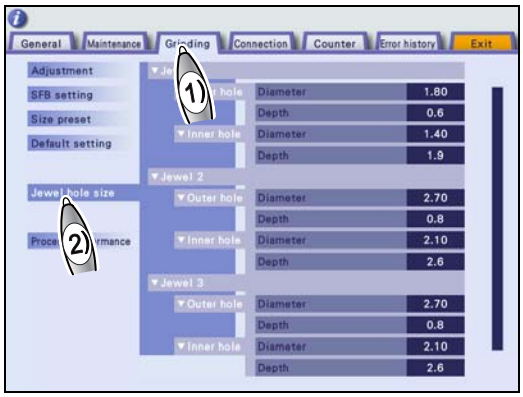
➔Menu screen



2 Set the “Jewel hole size” parameter.

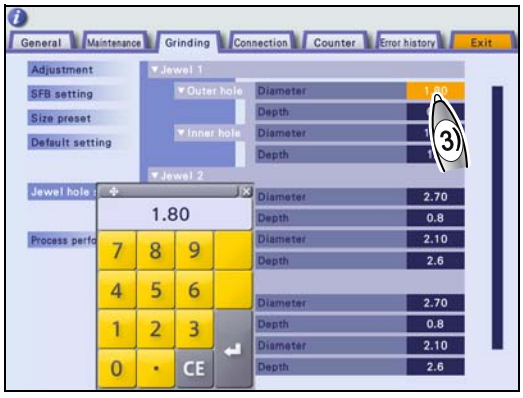
1) [Grinding]

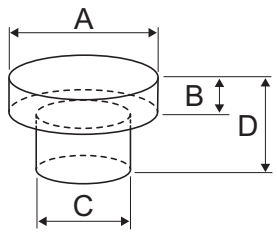
2) [Jewel hole size]



3) Numeric field of the desired item

➔ Dimension





A = Outer hole (Diameter)
B = Outer hole (Depth)
C = Inner hole (Diameter)
D = Inner hole (Depth)
Only values that satisfy A ≥ C and D ≥ B can be entered.

4) Repeat Step 3) to enter the dimensions for jewel holes 1 to 3 as necessary.

4.10 Size Checking and Retouching

Contents described in this section

4.10.1 Checking lens finish size

This section describes the procedure for checking the finish size after lens processing. If the finish size is large, retouch the lens to correct the size.

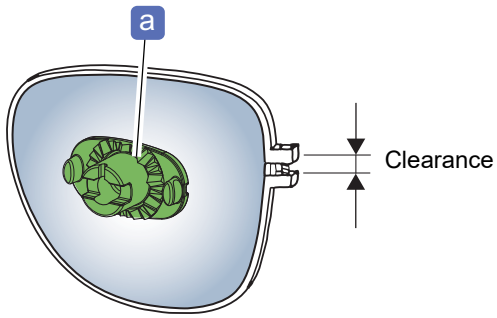
Do not remove the lens cup when checking the lens size after processing. If the cup is removed, the lens can no longer be retouched.

1 When processing is complete, remove the lens.

“3.7.2 Removing lenses” (page 81)

2 Fit the lens with the lens cup a attached into the frame.

3 Measure the clearance at the rim joint.



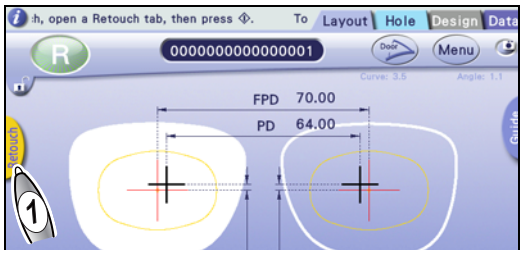
4.10.2 Retouching

This section describes the procedure for retouching the processed lens to correct the lens size and adjust each finishing.

Do not remove the lens cup when checking the lens size after processing. If the cup is removed, the lens can no longer be retouched.

1 [Retouch]

→Retouch screen



2 Select the items for retouching as necessary.

- Depressed buttons indicate that they are selected for retouching.
- Buttons with dark letters are active and selectable.
- Buttons with faint letters are inactive and unselectable.

Retouching	Details/Editing
Finish	Toggles between [Exec] and [None] for retouching of periphery. For the mini beveled edge, the bevel height can be changed.
Size	Sets the lens finish size with the numeric keypad. Guide for size adjustment: From the Size value, subtract the value that is obtained by dividing the clearance of the rim joint by pi (approximately 3). e.g. When the clearance is 1.2 mm 1.2 mm (clearance) ÷ 3 (pi) = 0.4 mm Decrease the Size value by 0.4.
Polish	Selects whether to retouch the polished safety beveled edge or polished edge.
SFB	Selects the safety beveling mode for retouching from among [Small], [Medium], [Large], [Special], and [Facet]. Faceting data can be edited.
Hole	Selects [All] (all holes) or [Adjusted] (holes adjusted after processing) for hole(s) to be retouched. Hole position, diameter, and such can be edited.
Groove	Toggles between [Exec] and [None] for groove retouching. Grooving data can be edited.
Design cut	Toggles between [Exec] and [None] for design cut retouching. Design cut data can be edited.
Hi-curve bevel	High base curve beveling data can be edited after high base curve beveling.
Custom bevel	Custom beveling data can be edited after custom beveling.

Retouching	Details/Editing
Step bevel	Toggles between [Exec] and [None] for step bevel retouching for the high base curve beveled or custom beveled edge. Step beveling can be added when the lens is retouched even if it was not performed during the first processing. Step beveling data can be edited.

- Pressing [Edit] displays a guide processing screen or data edit screen, and the data can be edited. Edited contents are overwritten to the original data, therefore, each screen reflects the contents even after the retouch screen is exited.
- When the opposite lens has not been processed and the box is checked, the settings adjusted for retouching are applied to the first processing of the opposite lens.

3 Set the lens to the lens adapter.

"3.7.1 Setting lenses" (page 80)

4 

The processing chamber door closes automatically, then retouching starts.

5 When retouching is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

6 Check the lens size and such after retouching. Retouch the lens again as necessary.

Note

When shape data received from a blocker is used for lens processing and adjusted for retouching, the data can be returned to the blocker.

Display the keyboard screen to enter the shape data name, then press Send .

◆ Safety bevel retouching

- Depending on the type of safety beveling performed in the first processing, the types available for retouching differ.
- When the shape size is set smaller than that for the first processing, safety bevel retouching is unavailable.

- When safety beveling was not performed in the first processing

  [Small], [Medium], [Large], and [Special] are selectable.
- When safety beveling was performed with [Small], [Medium], or [Large] selected in the first processing

  [Small], [Medium], and [Large] are selectable. Note that only the same type or larger type can be selected.
- When special safety beveling was performed in the first processing

  Whether to perform special safety bevel retouching can be selected.
- When faceting was performed in the first processing

  Whether to perform facet retouching can be selected.

  Pressing [Edit] allows facet data to be edited.

4.11 Opposite Lens Processing

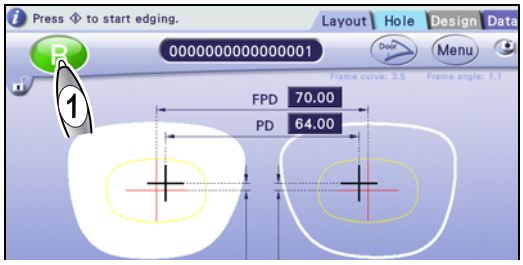
⚠ CAUTION

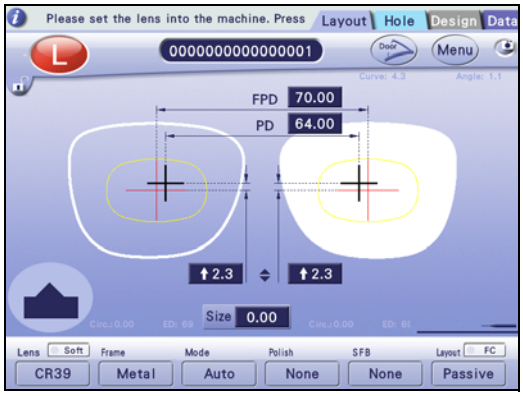
Confirm that the color of the lens cup is the same as that of R (green) or L (red) displayed on the layout screen. The green cup is used for the right-eye lens and the red one is used for the left-eye lens. If the colors do not match, the lens side may be incorrect.

1 Select the opposite lens.

R / L

→ R or L screen





2 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

3

The processing chamber door closes automatically, then processing starts.

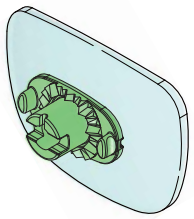
4 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

4.12 Frame Changing

This section describes the procedure for fitting the currently used lens into another frame.

In frame change mode, lens shape 1.5 mm inside the actual shape is measured to prevent the LMU (surface measurement feeler) from coming off the lens edge during shape measurement resulting in processing failure.



- Before processing, be sure to check whether the lens size is sufficient for processing. In frame change mode, lens shape 1.5 mm inside the actual shape is measured, so the size may be insufficient for the bevel apex.
- Safety beveling is unavailabe in frame change mode because the actual lens shape is not measured. Also, depending on the lens curve or lens shape, the precision of the bevel or groove position may be lowered than that of normal processing.

1 Load the desired shape.

"3.3 Data Loading, Saving, Receiving, and Sending" (page 50)

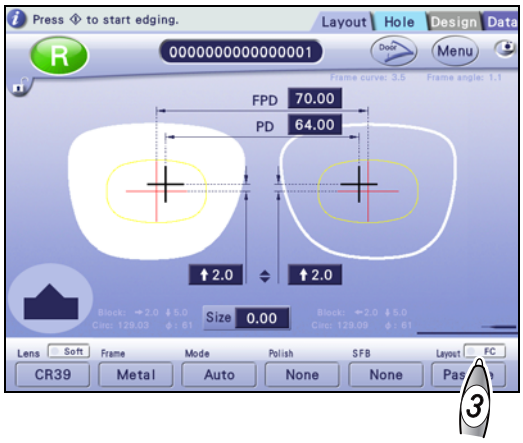
2 Set the processing conditions and enter the layout data.

"4.1 Entering Processing Conditions" (page 86), *"4.2 Entering Layout Data" (page 91)*

3 FC

Frame change mode is enabled, and the button appears as FC .

Pressing the button again disables the mode, and the button appears as FC .



4 Block a lens and set it to the lens adapter.

"3.7.1 Setting lenses" (page 80)

5

The processing chamber door closes automatically, then processing starts.

6 When processing is complete, remove the lens.

"3.7.2 Removing lenses" (page 81)

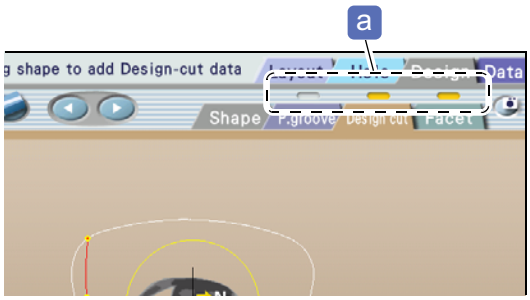
5 DESIGN EDIT

Contents described in this chapter

5.1 Design Processing

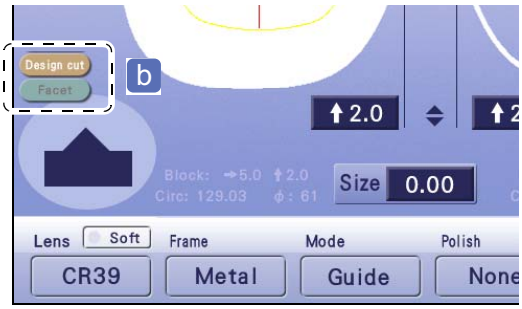
- Design data indicators

  - Indicators a showing whether design data exists (yellow indicates the presence while gray indicates the absence) are displayed above the design screen change tabs on the partial grooving / partial beveling screen, design cut screen, and facet screen.

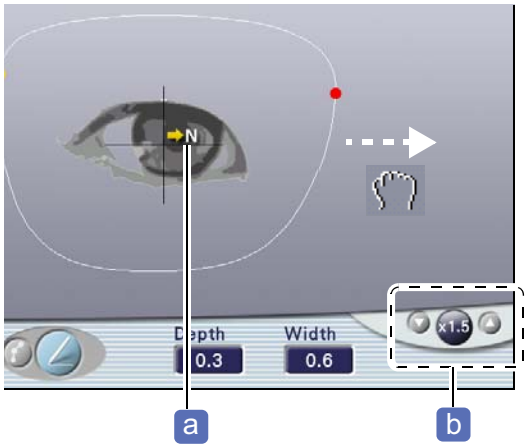


  - When design data exists, indicators b are also displayed to the left of the layout screen.

    When the letters are displayed in white, processing is performed according to the data. When the letters are displayed in gray, processing is not performed although design data exists. Check the processing conditions.



● Functions to make the design edit screens easier to see



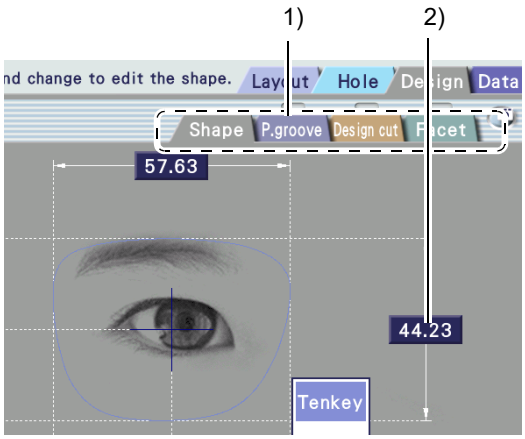
- N Nasal side mark a
  The arrow indicates the nasal side.
- Changing the display magnification
  On the partial grooving / partial beveling screen and the facet screen, pressing ▽ or △ to the right or left of the magnification indication b switches the display magnification as follows:
  ▽ : [×4.0] → [×2.0] → [×1.5] → [×1.0]
  △ : [×1.0] → [×1.5] → [×2.0] → [×4.0]
  On the design cut screen and step edit screen, [×8.0] is displayed in addition to the above.
- Moving the shape display
  When any magnification other than [×1.0] is selected, the shape can be moved by dragging the cursor.
  While being dragged, the cursor changes from to .

● Buttons that are common or partially common on the design edit screens

Button	Button name	Function
	Undo	Undoes up to five editing operations.
	Redo	Redoes up to five editing operations.
	Initialize	Clears the edited data and displays the original shape data.
	Delete	Deletes the selected data.
	Edit data select	Selects the previous data.
		Selects the next data.

1) Design screen change tabs
Switch the screen among the shape edit screen, partial grooving / partial beveling screen, design cut screen, and facet screen.

2) Dimension field
The value in the field is changed with the numeric keypad or by turning the jog dial.

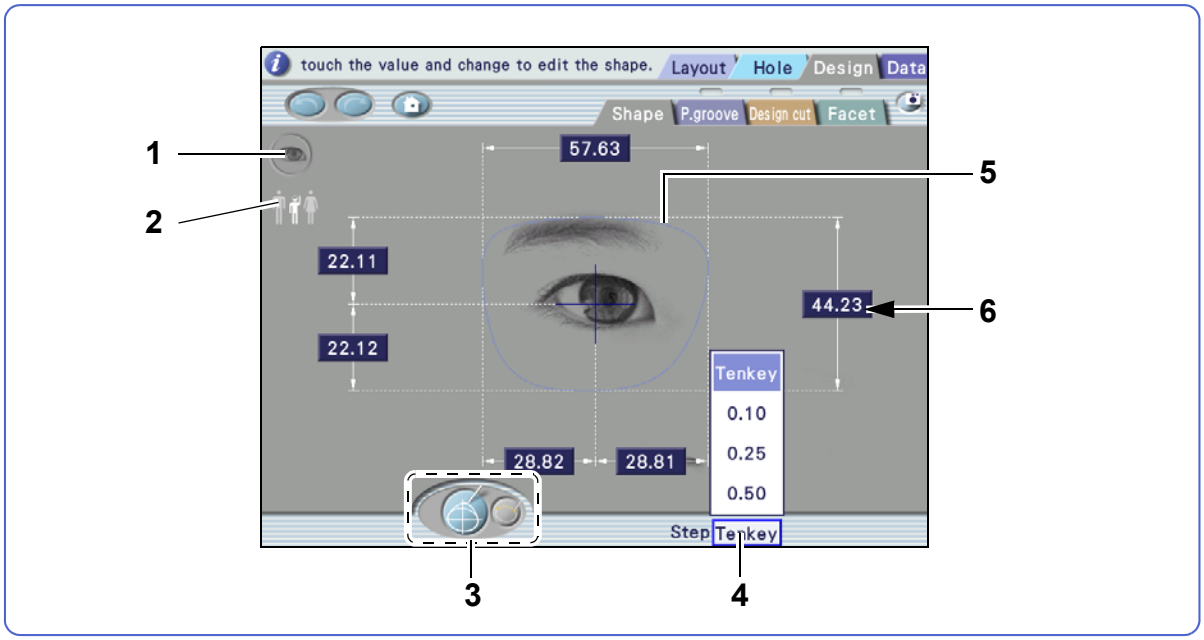


5.2 Design Screen and Function

Contents described in this section

◆ Shape edit screen

Pressing the [Shape] tab on the design screen displays this screen.



1 Eye image button

Displays and hides the eye image alternately.

2 Human form button

Switches the eye image display in the center of the shape edit screen to man, child, or woman.

Man	Child	Woman
		

3 / Outline change / Fix area button

Switches between outline change mode and fix area mode.

Outline change mode	Changes the shape by entering dimensions or dragging the shape outline.
Fix area mode	Specifies the area not to be changed by dragging. Pressing off clears the fixed area.

4 [Step] field

Selects the increment from among 0.10, 0.25, and 0.50 mm for when the value in the dimension field is changed with the jog dial.

When [Tenkey] is selected, values are entered with the numeric keypad.

5 Shape

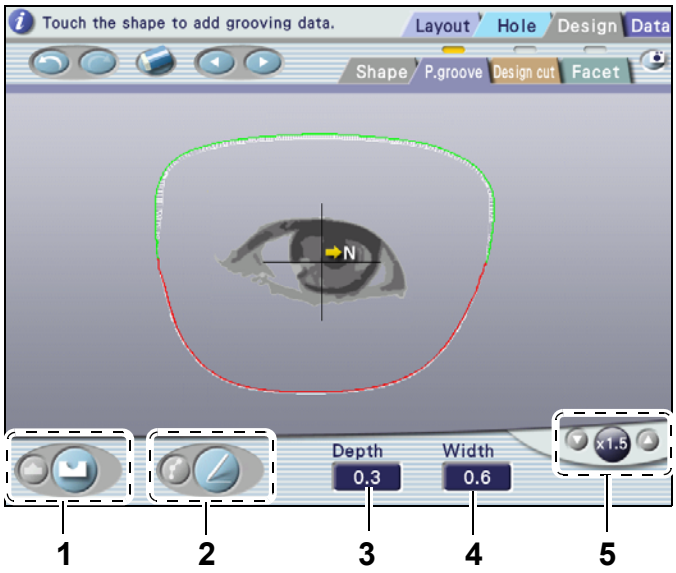
Gray line	Shape before change
Yellow line	Fixed area specified in fix area mode
Red line	Shape line being dragged
Blue line	Confirmed shape after change

6 Dimension field

Entering the dimension of each part changes the shape. However, dimensions displayed in gray cannot be changed.

◆ Partial grooving / partial beveling screen

Pressing the [P.groove] tab on the design screen displays this screen.



1 Partial grooving/beveling button

Switches between partial grooving mode and partial beveling mode.

Partial grooving mode	Adds partial grooving data.
Partial beveling mode	Adds partial beveling data.

2 Add/edit button

Switches between add mode and edit mode.

Add mode	Adds design data.
Edit mode	Edits the added design data.

3 [Depth] field

Sets the groove depth.

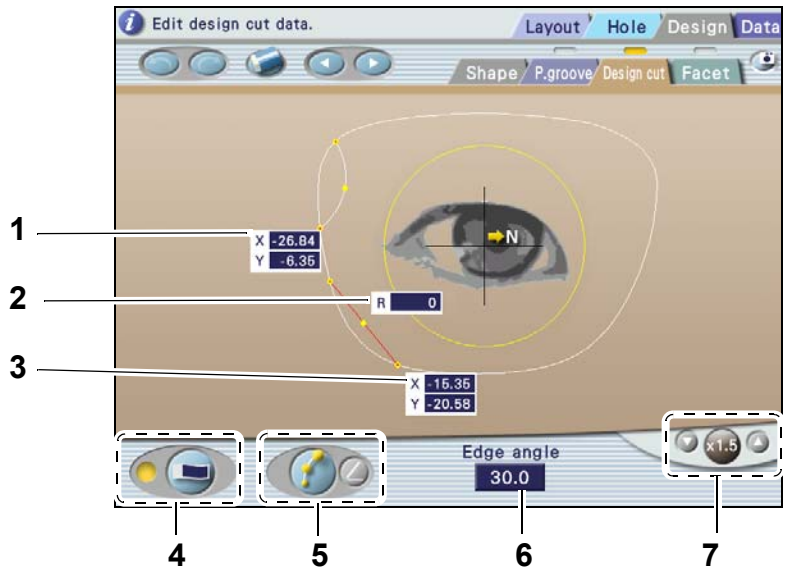
4 [Width] field

Sets the groove width.

5 Magnification buttons

◆ Design cut screen

Pressing the [Design cut] tab on the design screen displays this screen.



1 Start point coordinates field

Indicates the coordinates of the start point for the selected design cut data.

2 Curve field

Indicates the curve value of the selected design cut data.

3 End point coordinates field

Indicates the coordinates of the end point for the selected design cut data.

4  Field on/off button

Displays or hides the start point coordinates, end point coordinates, and curve fields.

5 Add/edit button

Switches between add mode and edit mode.

 Add mode	Adds design data.
 Edit mode	Edits the added design data.

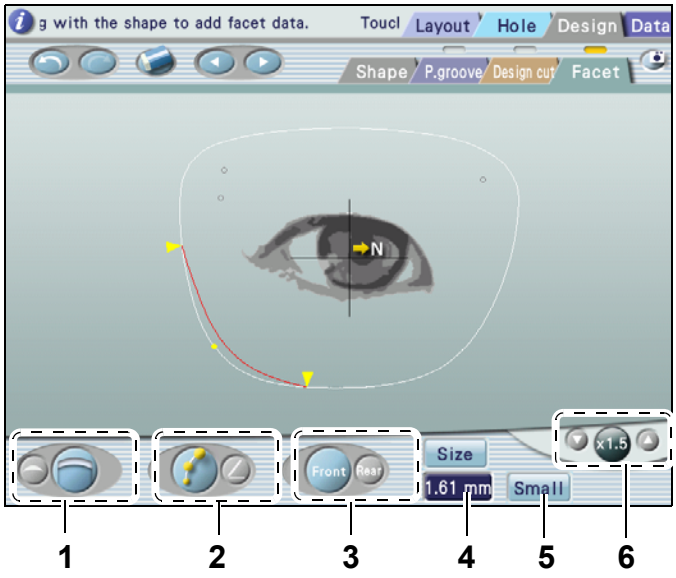
6 [Edge angle] field

Indicates the edge angle of the data being edited. The angle can be changed in the range of 0 to 30º with the numeric keypad.

7 Magnification buttons

◆ Facet screen

Pressing the [Facet] tab on the design screen displays this screen.



1 Facet shape button

Selects the shape of both edges to be faceted.

	Faceting is wider around the center of the selected area.
	Faceting is almost the same width throughout the selected area.

2 Add/edit button

Switches between add mode and edit mode.

 Add mode	Adds facet data.
 Edit mode	Edits the added facet data.

3 [Front]/[Rear] button

Selects whether facet data is entered for the front or rear.

 Front	Enters facet data for the front.
 Rear	Enters facet data for the rear.

4 [Size] field

Specifies the maximum facet amount in the selected data.

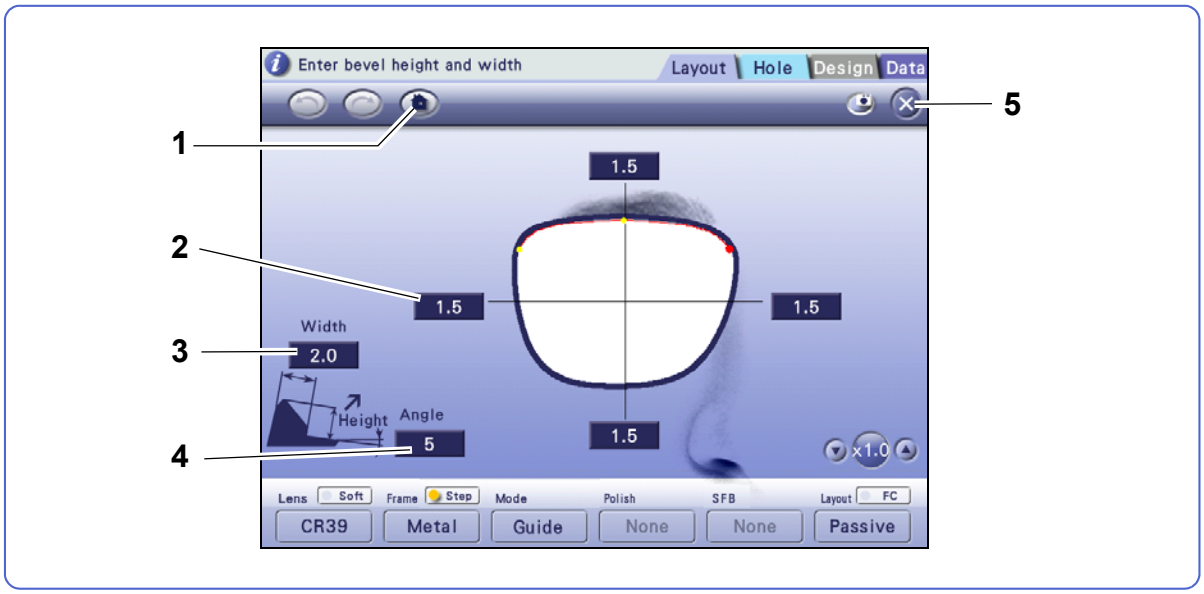
5 Safety bevel amount button

Selects the safety bevel amount of the part not to be faceted from among [Small], [Medium], and [Large].

6 Magnification buttons

◆ Step edit screen

Pressing the [Step] tab with step beveling selected displays this screen.



1 **Initialize button**

Resets the step width and height to the default values.

2 **[Height] field (four positions)**

Sets the step height for the area to be step beveled.

3 **[Width] field**

Sets the lens edge width for the area to be step beveled.

4 **[Angle] field**

Sets the lens edge angle for the area to be step beveled.

5 **button**

Closes the step edit screen.

5.3 Lens Design

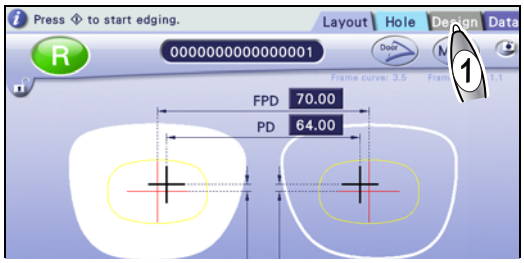
Contents described in this section

5.3.1 Shape editing

- When a fixed area is specified, the shape outline can be changed at only one section. Attempting to change another section automatically resets it to the initial form.
- When a fixed area is specified, the changeable dimensions are displayed in white and unchangeable ones are in gray. Even for the dimensions displayed in white, some may not be changed if the area to be changed is too small.
- Depending on whether a fixed area is specified or not, similar changes to the same shape may have different results.

1 [Design]

→Design screen



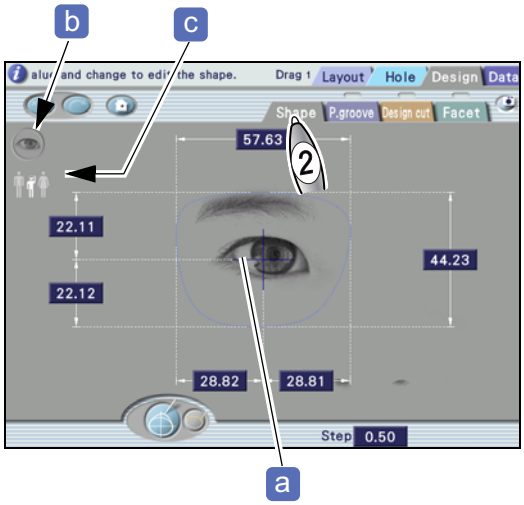
2 [Shape]

→Shape edit screen

3 Set the eye image a as necessary.

1) Pressing the eye image button b displays and hides the eye image alternately.

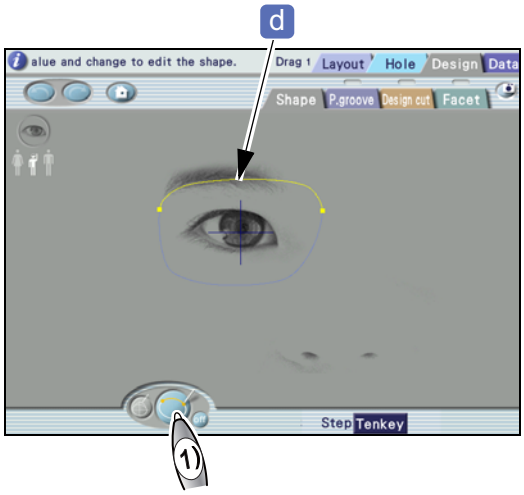
2) Select the eye image by pressing the man, child, or woman c on .



4 Specify a fixed area (that is not to be changed in the shape) as necessary.

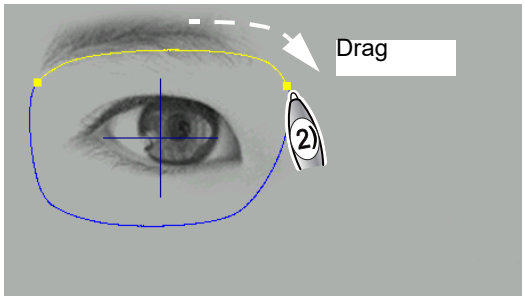
1) [Fix area]

The fixed area d is displayed in yellow.

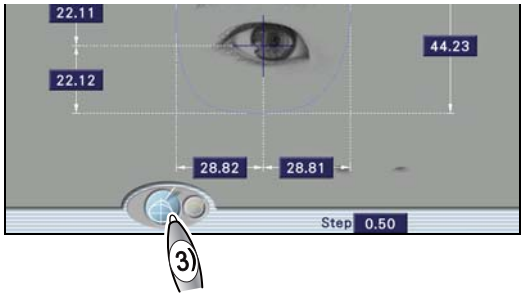


2) Drag the handles (yellow points) at both ends of the fixed area to change it.

Pressing off clears the fixed area.



3) [Outline change]

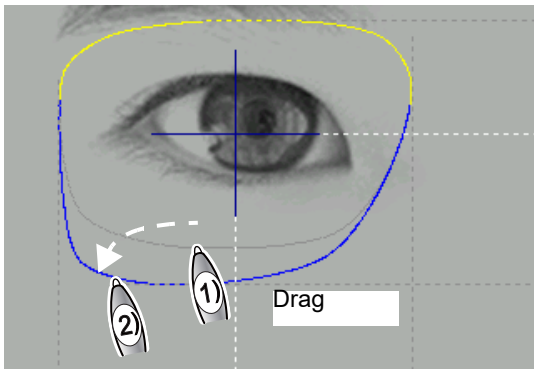


5 Change the shape.

The shape can be changed using the touch pen, numeric keypad, or jog dial.

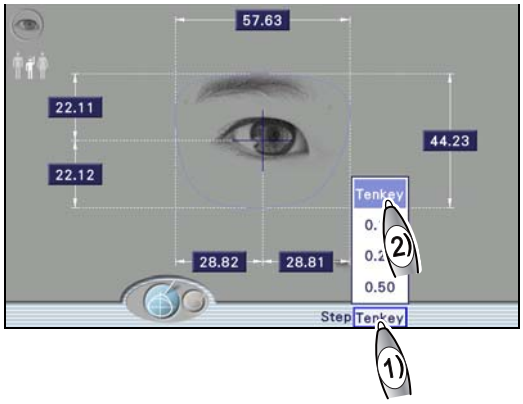
- When using the touch pen

1) Touch the shape outline (blue line) to be changed with the touch pen.
2) Drag the blue line to create the desired shape. The line turns from blue to red.
3) Lifting the touch pen from the screen confirms the shape change, and the red line turns blue.



Gray line	Shape before change
Yellow line	Fixed area specified in fix area mode
Red line	Shape line being dragged
Blue line	Confirmed shape after change

- When using the numeric keypad



1) [Step]

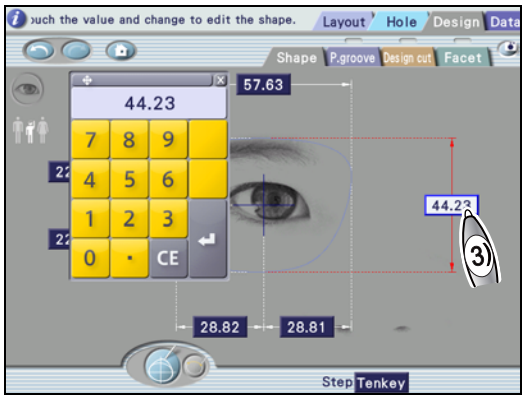
2) Tenkey

3) Dimension field

The corresponding dimension line turns red.

➔ Desired dimension

The shape is changed.



- When using 

1) Set the increment as necessary.

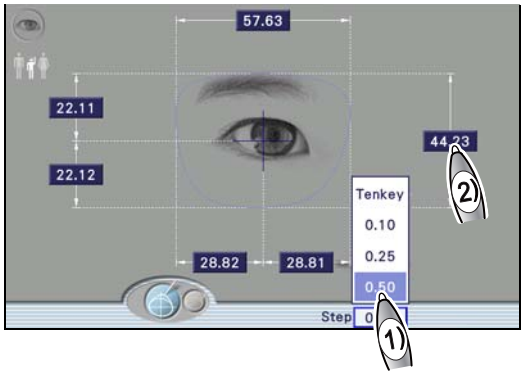
[Step] ➔ [0.10], [0.25], [0.50]

2) Dimension field

The corresponding dimension line turns red.

3) Turn  to change the value.

The shape is changed.



6 [Layout]

➔Layout screen

Exiting the shape edit screen to another screen confirms shape change, which cannot be canceled. To restore it, load the shape data again.

5.3.2 Partial groove / partial bevel editing

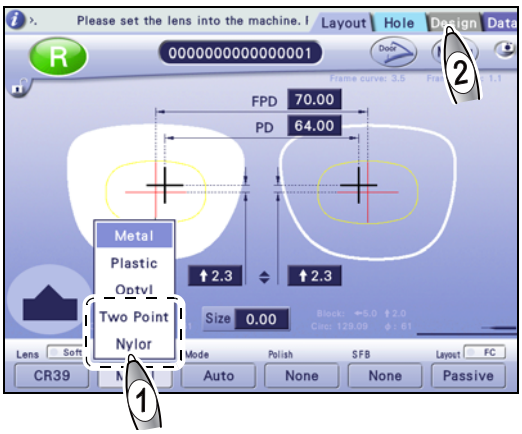
- Multiple partial grooving data with different groove depths and widths can be specified. The curve mode, position, and tilt amount of the groove and bevel cannot be set on this screen. To set them, use guide processing.
- Partial grooving or partial beveling data is entered for the right shape. The data is mirrored to the left shape. Entering data differently between the right and left shapes is not allowed.
- For the area for which partial beveling is specified, safety beveling, special safety beveling, polishing, and facet are unavailable. For glass lenses, partial beveling and partial grooving are unavailable.

1 Select the frame type.

[Frame] → Two Point / Nylor

2 [Design]

→Design screen



3 [P.groove]

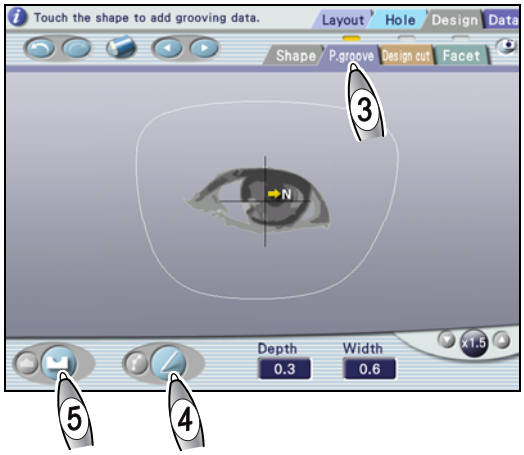
→Partial grooving / partial beveling screen

4 [Add]

5 /

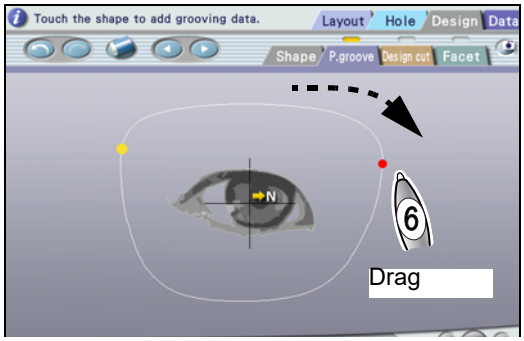
: Edits partial beveling data.

: Edits partial grooving data.



6 Add partial grooving or beveling data.

1) Touch the start position of the area to be partially grooved or beveled with the touch pen. The handle (yellow point) is displayed at the drag start position.
2) Drag the handle to the end position of the area with the touch pen. The handle (red point) is displayed at the drag end position.
3) When the touch pen is lifted, the specified area is displayed as a red line.



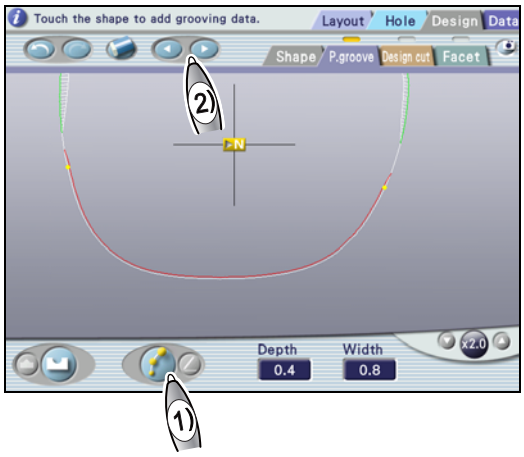
7 If necessary, repeat Steps 4 to 6 to add data.

8 If necessary, edit the entered data.

1) [Edit]

2) Select the data to be edited with or .
The selected data is displayed in red.

3) Drag the handles (yellow points) at both ends of the data to edit it.



9 Change the groove depth or width as necessary.

- Groove depth change

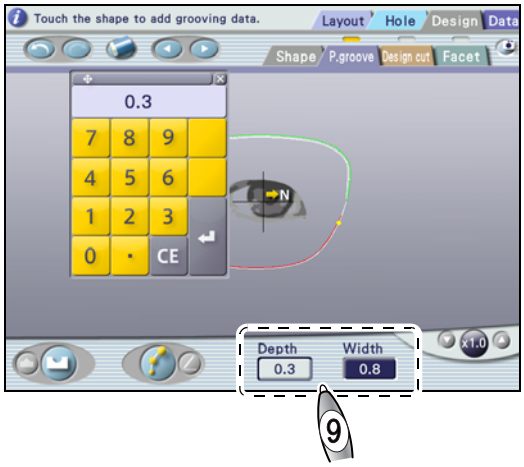
[Depth] field

→ (Setting range: 0.0 to 0.8 mm)

- Groove width change

[Width] field

→ (Setting range: 0.6 to 1.2 mm)



Note

Data connection

Partial grooving data may be connected to another partial grooving data, or similarly, partial beveling data to another partial beveling data, by dragging the data handles. This is not possible for three or more data items.

10 [Layout]

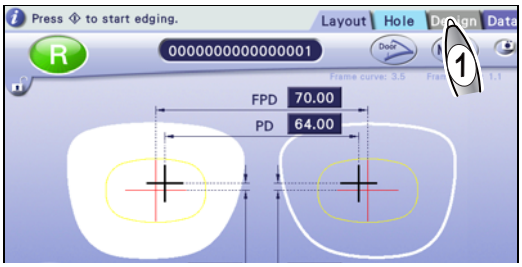
→ Layout screen

5.3.3 Design cut editing

- For design cut, the data is entered for the right shape. The data is mirrored to the left shape. Entering data differently between the right and left shapes is not allowed.
- Design cut cannot be performed within the area circled in yellow. Also, design cut is unavailable for glass lenses.
- Small design cut (approximately 2 mm or less) may not be performed as entered.

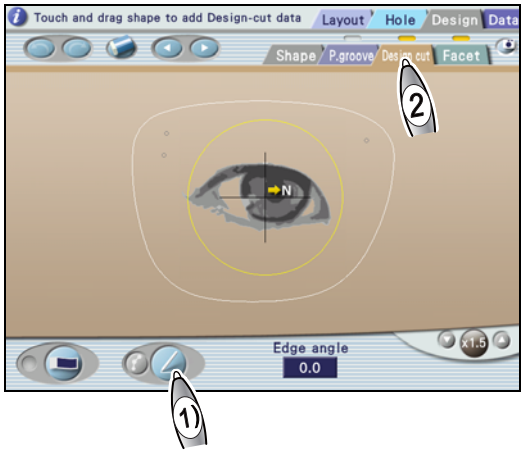
1 [Design]

→Design screen



2 [Design cut]

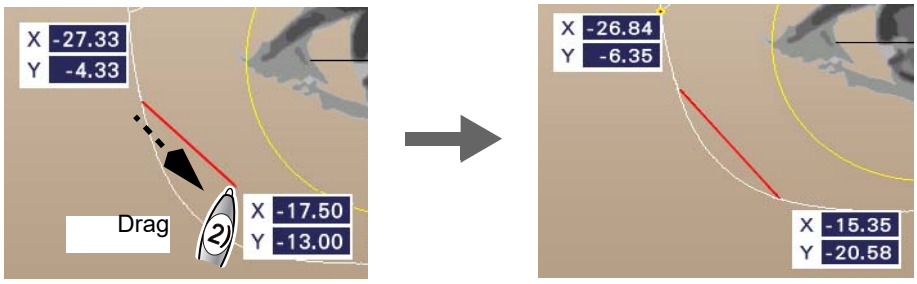
→Design cut screen



3 Change the display magnification as necessary.

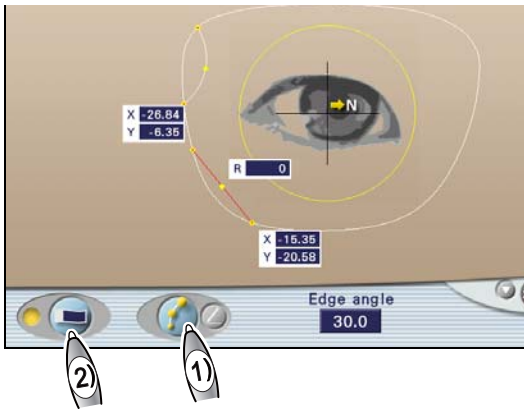
4 Enter design cut data.

1) [Add]
2) Drag from the start point to the end point of design cut data with the touch pen.
3) Repeat Step 2 to add necessary data.



Both points of design cut data must be connected with the lens edge or another data point. All connected data will have the same edge angle.

5 Activate edit mode.



1) [Edit]

In edit mode, three handles (yellow points) are displayed for each data. The color of the handles at both ends indicates the connection conditions:

Red	Connected to the shape edge.
Green	Connected to another data.

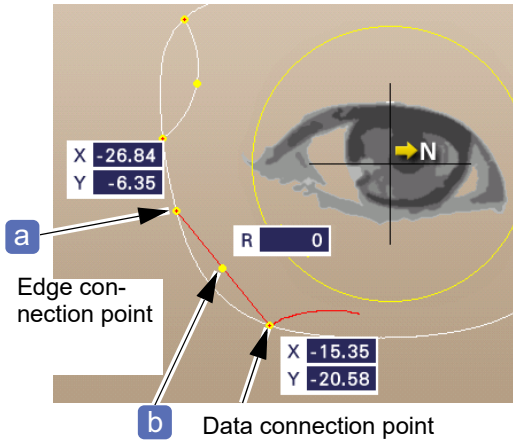
2) If necessary, press to display the start and end point coordinates and curve value.

6 Edit the entered design cut data.

It can be edited using the touch pen or numeric keypad.

- Be sure to connect the handles at both ends of data to the lens edge or another data point. Otherwise, it is not possible to exit edit mode.
- Once connected, data points cannot be disconnected. When data is mistakenly connected, press to return to the previous state or delete either data.

● When using the touch pen



1) Select the data to be edited with the touch pen.

The selected data is displayed as a red line.

2) Drag the handle at the start point a or that at the end point to move it.

When the handle is moved close to the lens edge, or the start or end point of another data, they are connected automatically.

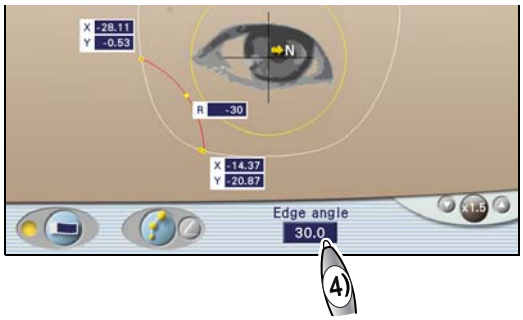
Connection to another data takes priority over edge connection.

3) Drag the middle handle b to create the desired curve.

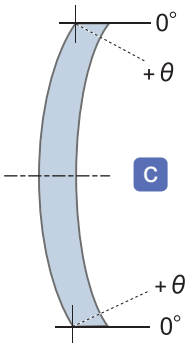
4) [Edge angle] field

→ (Setting range: 0 to 30°)

When [Edge angle] is set to 0°, the edge becomes parallel to the chuck axis c. Entering a positive value tilts the edge in the direction of the chuck axis.



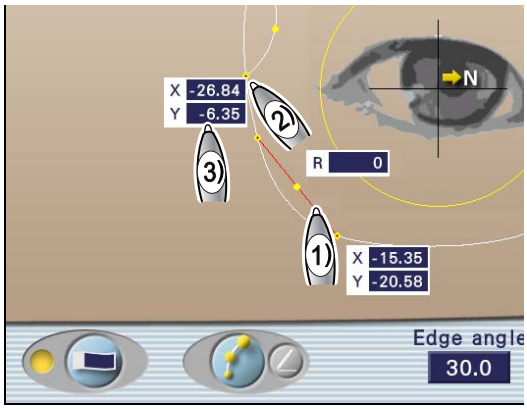
5) Repeat Steps 1) to 4) to edit all data.



- When using the numeric keypad

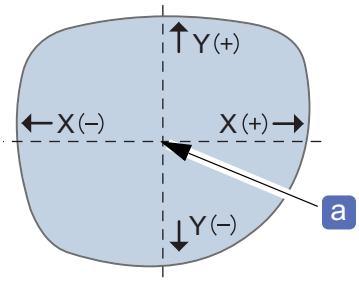
1) Select the data to be edited with the touch pen.

The selected data is displayed as a red line. The start and end point coordinates and curve value are displayed.



2) X coordinate field of start point

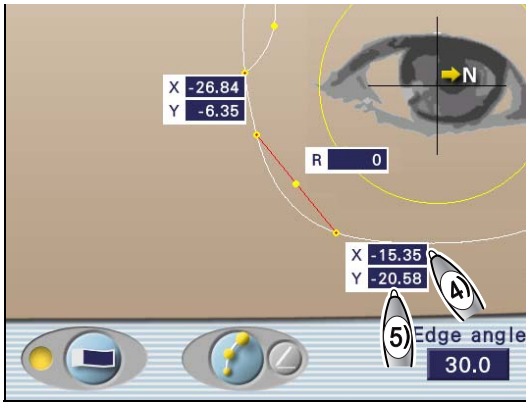
The XY coordinates are indicated with positive and negative values taking the frame center a as the origin (unit: mm).



3) Y coordinate field of start point

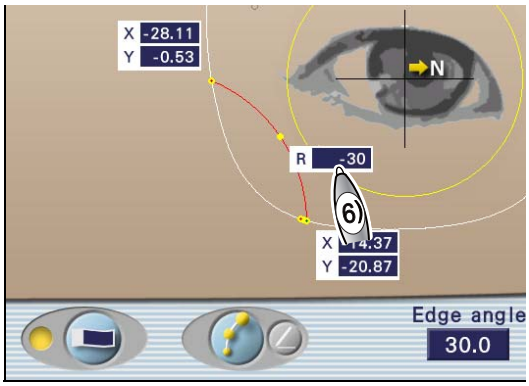
4) X coordinate field of end point

5) Y coordinate field of end point



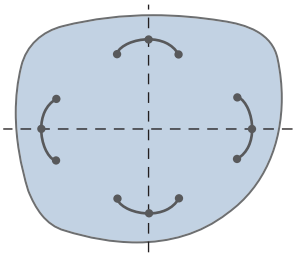
6) Curve (R) field

→ (Setting range: -99 to +99%)

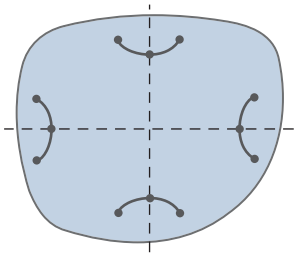


When the curve (R) field is set to 0%, the data appears as a straight line. As the value increases, the line becomes more curved. When +99% or -99% is entered, it becomes a semicircle. Entering a positive value curves the data line away from the center. Entering a negative value curves the data line toward the center.

R: +50%



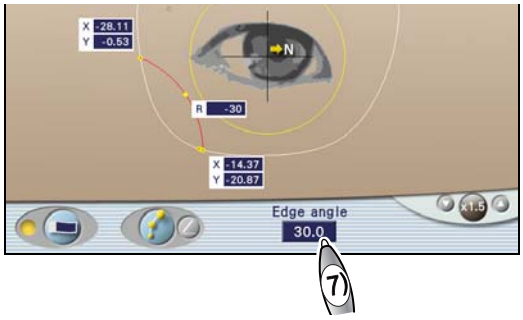
R: -50%



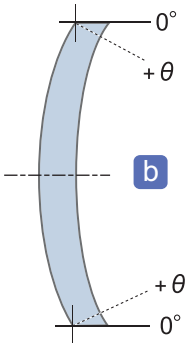
7) [Edge angle] field

→ (Setting range: 0 to 30°)

When [Edge angle] is set to 0°, the edge becomes parallel to the chuck axis b. Entering a positive value tilts the edge in the direction of the chuck axis.



8) Repeat Steps 1) to 7) to edit all data.



7 [Layout]

→Layout screen

If the start or end point of data is not connected anywhere, an error message appears. Edit the data properly.

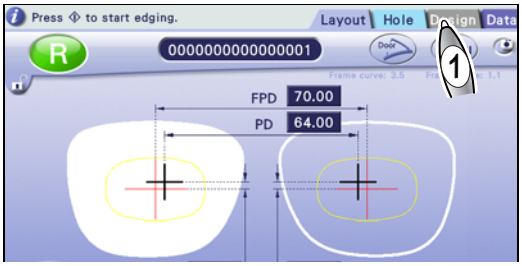
5.3.4 Facet editing

The facet function allows the front and rear lens edges to be faceted with any width, range, and position.

- The facet function is available for the following:
  Frame type: Two Point
  Lens material: CR39, Hi-index, Polyca., or Trivex
- To facet a lens, a line indicating the facet area is drawn on the right shape. The data is mirrored to the left shape. Entering data differently between the right and left lenses is not allowed.
- Be sure to check the facet condition on the facet guide screen when processing lenses.
  Finish condition of the faceted lens differs depending on the lens shape.

1 [Design]

➔Design screen



2 [Facet]

➔Facet screen

3 Enter facet data in add mode.

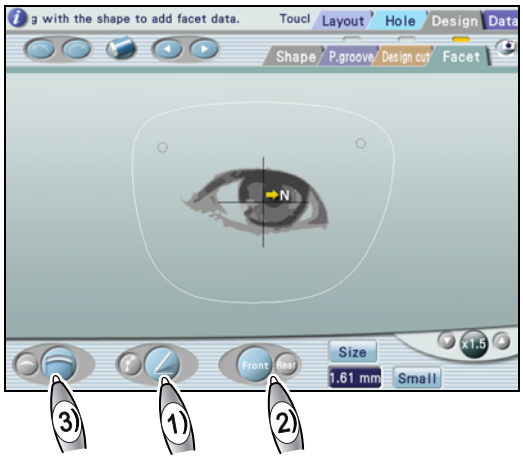
1) [Add]

2) Front / Rear

Select whether facet data is entered for the front or rear.

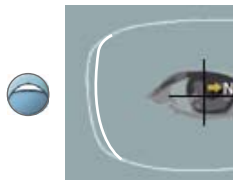
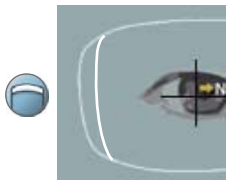
Switching between Front and Rear flips the shape to be viewed from the selected side.

Front	Front data
Rear	Rear data



3) /

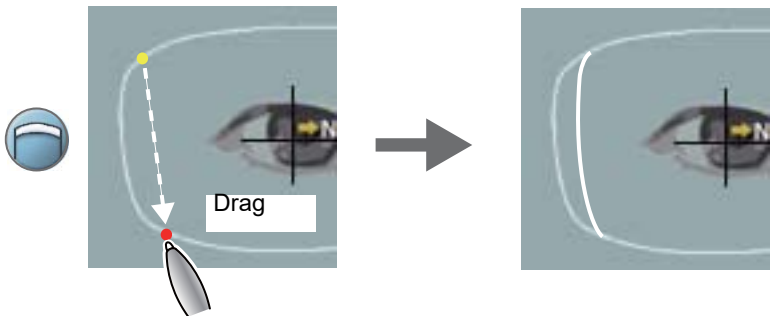
Select the facet shape.

	Faceting is wider around the center of the selected area.
	Faceting is almost the same width throughout the selected area.

4) Touch the end of the area to be faceted on the shape outline with the touch pen. The yellow handle is displayed.

5) Drag the handle to the other end of the area to be faceted. The red handle is displayed at the drag end position.

6) When the touch pen is lifted, the specified facet area is displayed as a line. The data is displayed as a light blue line for the front edge and as a violet line for the rear edge.

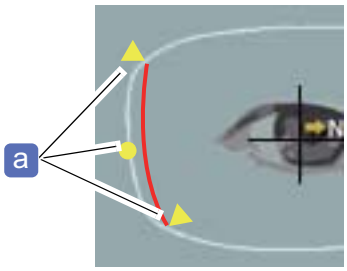


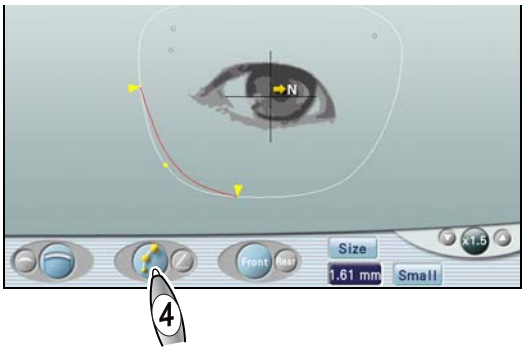
7) If necessary, repeat Steps 2) to 6) to add facet data.

Up to 10 data items can be added for each of the front and rear edges.

4 [Edit]

In edit mode, the selected line is displayed in red. Handles a for editing are displayed at both ends of the line. For data, a handle is also displayed in the middle.





5 If necessary, edit the data entered in Step 3.

1) Select the data to be edited with  or  .

   The selected data is displayed as a red line.

2) Press  or  to change the facet shape.

3) Drag either of the handles (yellow triangle) at the ends to move the start or end point of the data.

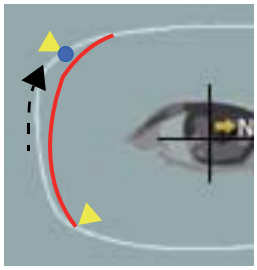
   When the middle handle is yellow, its position is changed according to the movement of the end handle.

4) When the facet shape is  , the middle handle can be moved by dragging.

   Dragging and lifting the touch pen at the desired position moves the middle handle there, and it turns blue. This is the position where the faceted width of the selected data is maximum.

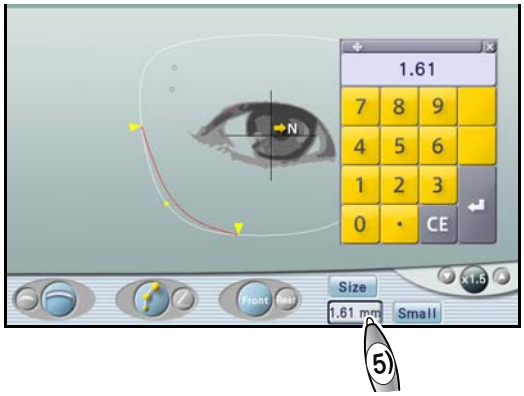
   When the middle handle is blue, its position is not changed even if the end handle is moved.

Drag



5) To change the facet amount, select the data, press the [Size] field to display the numeric key-pad, and enter the desired value. The set value is the maximum facet amount of the selected data.

   The actual maximum facet amount may be less than the entered value after lens shape measurement due to the influence of the lens edge thickness or curve.



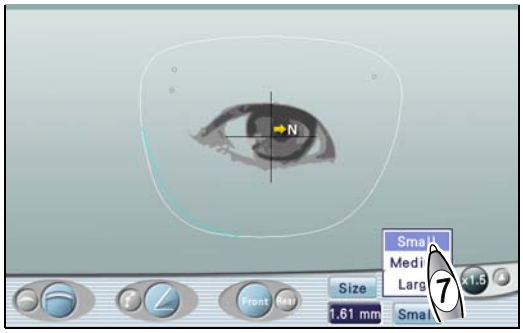
6 If necessary, repeat Steps 3 to 5 to edit all data.

7 Select the safety bevel amount for the area not to be faceted as necessary.

[SFB] → [Small]/[Medium]/[Large]

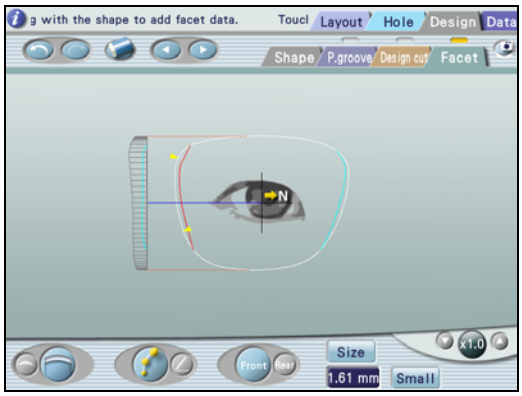
8 [Layout]

→Layout screen



◆ Facet condition check

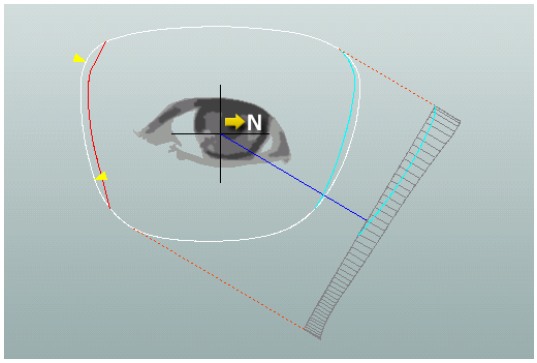
After lens shape measurement, faceting pauses, then the facet guide screen is displayed. Check the facet condition on this screen, and correct the facet data as necessary.



1 Check the edge condition at each position.

Turn ◎ to check whether the edge is faceted as desired.

- Turning the jog dial by one click turns the edge view by one increment in the same direction as the dial.
- Quickly turning the dial rotates it continuously.
- Turning the jog dial by one click while the edge view is rotating stops the rotation.



2 If necessary, precisely adjust the facet setting.

“5.3.4 Facet editing” (page 160)

3 ☞ STARTS

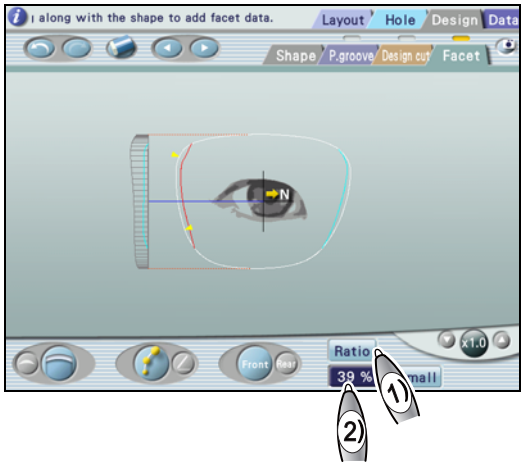
Restart processing.

Pressing STOP stops processing.

◆ To specify the facet amount by [Ratio]

1) Press [Size] to select [Ratio].
2) Enter the ratio of the facet amount to the lens thickness in the [Ratio] field.
3) Check the edge condition at each position.

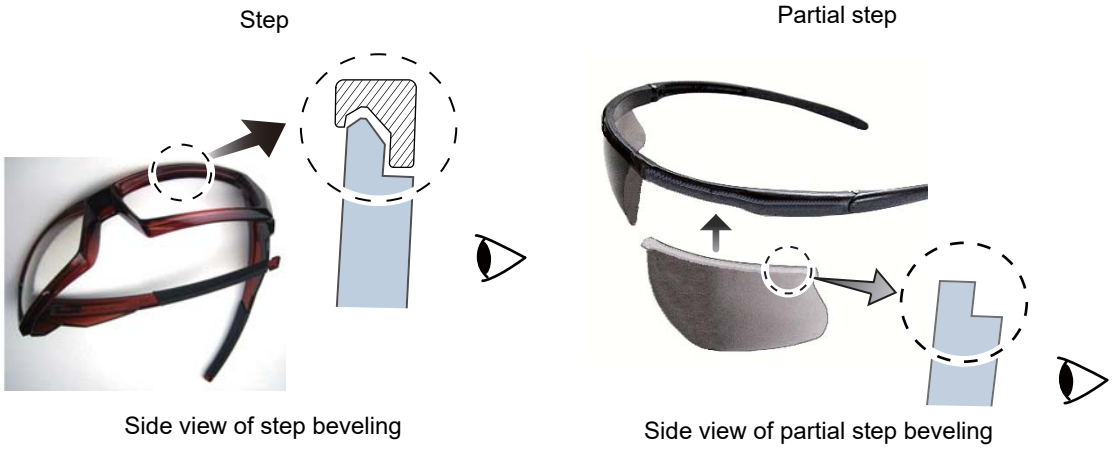
   Turn ◎ to check whether the edge is faceted as desired.



5.4 Step Beveling

Contents described in this section

Step beveling is a processing to enhance safety by cutting a step on the rear surface of lenses for high base curve frames such as sport sunglasses, to prevent the lens from detaching toward the eye side.



Side view of step beveling

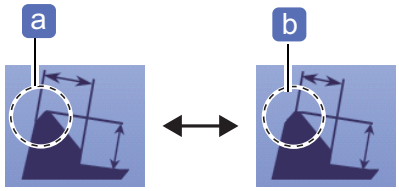
Side view of partial step beveling

- Step beveling is unavailable for glass lenses and EX lenses. Polishing and safety beveling cannot be selected.
- It is not possible to create new partial step data with this instrument. Partial step beveling is possible only when partial step data is imported from the ICE.
- Partial step beveling is flat edging without safety beveling or polishing. Depending on the frame groove, it may be necessary to manually safety bevel the lens.

5.4.1 Step editing

This section describes the procedure for editing the step height, width, and angle.

- For whether to set the step width from the lens front surface a or from the bevel position b as the default, see B-09*" Enable to bevel-based curve for step processing (High-curve bevel)" (page 177)*.



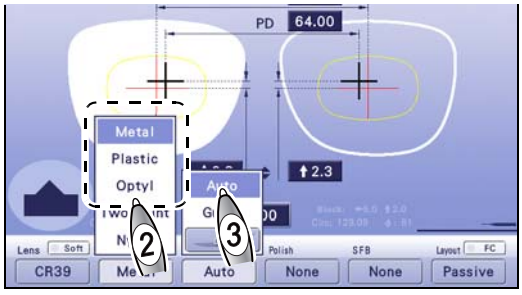
- Step beveling is unavailable for glass lenses. Polishing and safety beveling cannot be selected.
- When [EX] is selected for the processing mode, bevel shape is automatically set to [Normal].
- Set the layout mode to [Passive]. When it is set to [Active] or [Bifocal], bevel shape is automatically set to [Normal].
- The front and rear edges of the lens are beveled separately. Step beveling takes longer than normal beveling.

1 Select the lens material.

"4.1 Entering Processing Conditions" (page 86)

2 Select the frame type.

[Frame] → Metal / Plastic / Optyl

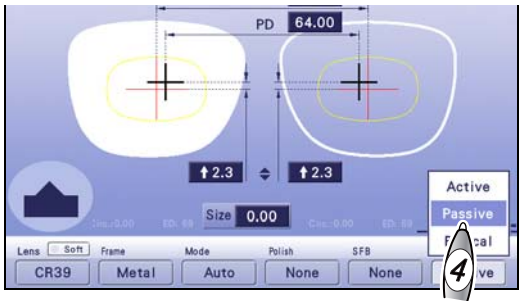


3 Select the processing mode.

[Mode] → Auto / Guide

4 Select the layout mode.

[Layout] → Passive



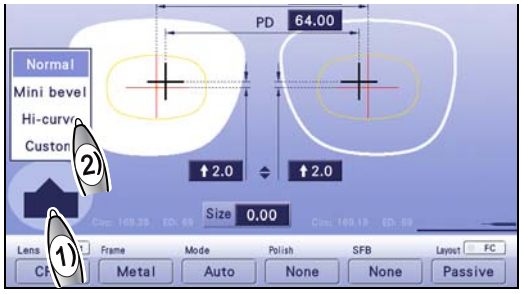
5 Set the other processing conditions as necessary.

6 Select [Hi-curve] or [Custom].

1) Processing image

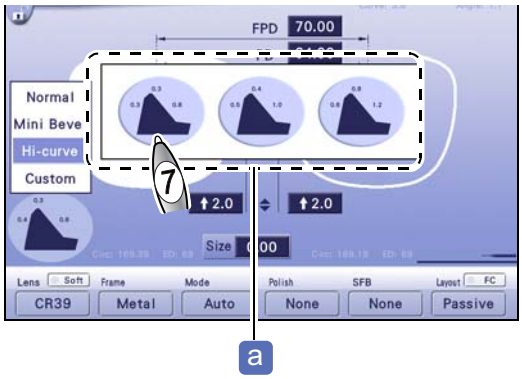
2) Hi-curve

→ Pop-up menu



5

7 Select the default of step beveling from the three settings a.



8 Step

9 [Step] tab

➔Step edit screen

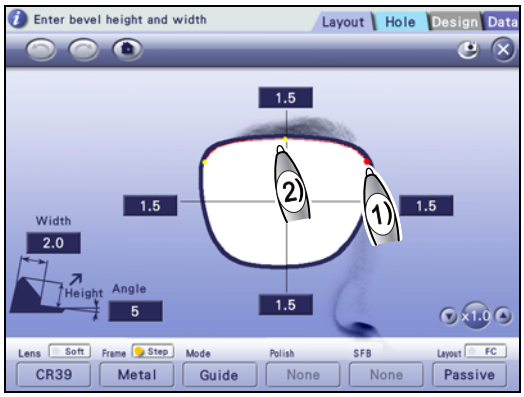
10 Edit the step data.

- Editing the step height

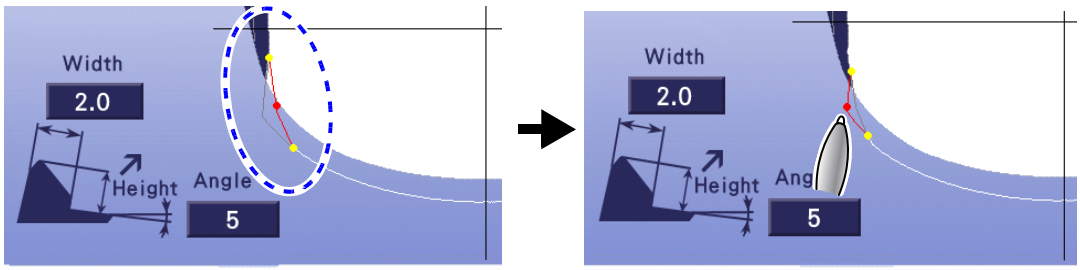
Height

- When dragging the middle handle to specify the step height

1) Drag the handles at both ends to specify the step change area.
2) Drag the middle handle to specify the step height.



Step data can be corrected more precisely by breaking the correction into a number of smaller steps.

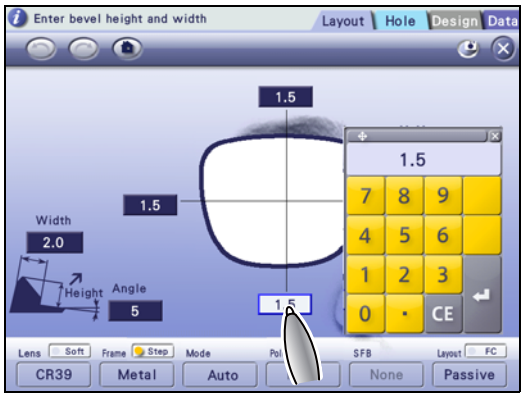


- When using the numeric keypad to specify the step height

[Height] fields (four positions)

→ (Setting range: -2.0 to +5.5 mm)

These fields are displayed only when the magnification is set to ×1.

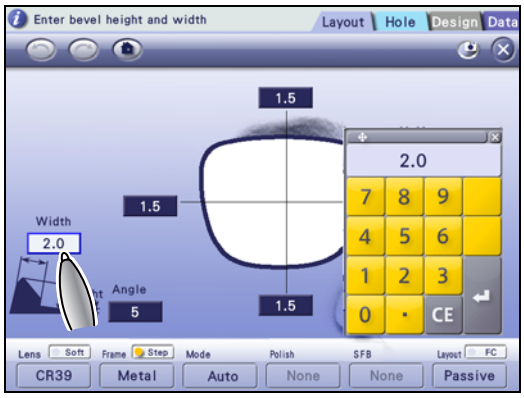


- Editing the step width

[Width] field

→ (Setting range: 0.5 to 5.0 mm)

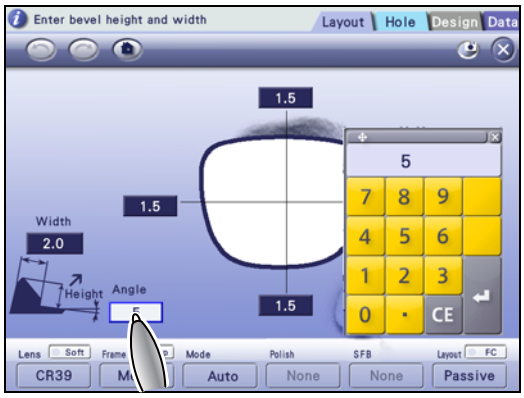
Measure the thickness of the demo lens edge and enter that or a smaller value.



- Editing the step angle

[Angle] field

→ (Setting range: 5 to 15°)



◆ When [Auto] or [Guide] is selected for step beveling mode

- When Auto is selected in Step 3

  ❖ The subsequent procedure is the same as Steps 5 to 7 in *"4.3.1 Auto beveling" (page 98)*.

- When Guide is selected in Step 3

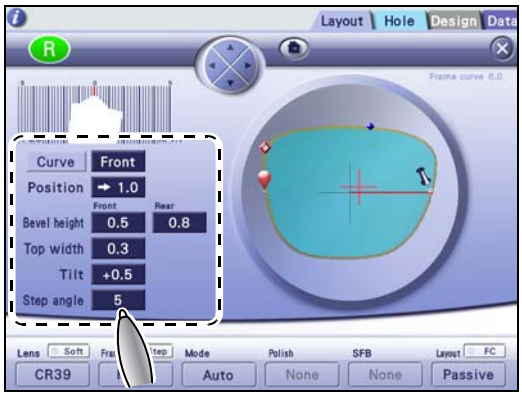
  ❖ The subsequent procedure is the same as Steps 9 to 14 in *"4.3.4 High base curve beveling" (page 108)*. The step angle can be set on the simulation screen.

  [Step angle] field

  → (Setting range: 5 to 15°)

  Angle



5.4.2 Partial step editing

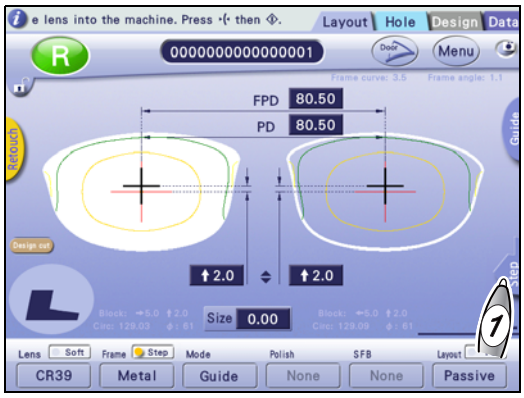
This section describes the procedure for editing the partial step data imported from an intelligent blocker.

For the partial step data, the layout screen is locked, and editing is restricted.

- The processing conditions and layout data cannot be changed. However, the layout value that was not entered on the intelligent blocker can be entered on the ME-1500.
- Pressing  releases the lock. However, normal step beveling mode is activated, and partial step beveling is disabled.

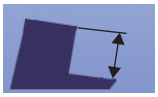
1 [Step]

→Step edit screen



2 Edit the partial step data.

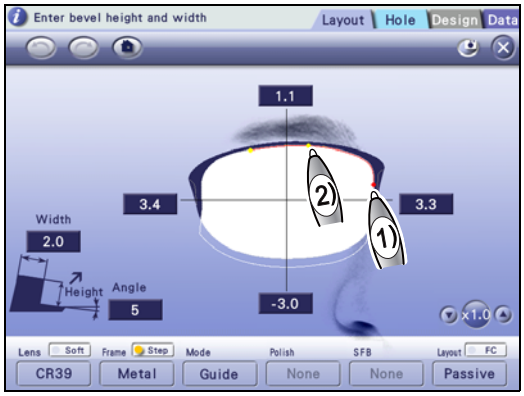
● Editing the partial step height



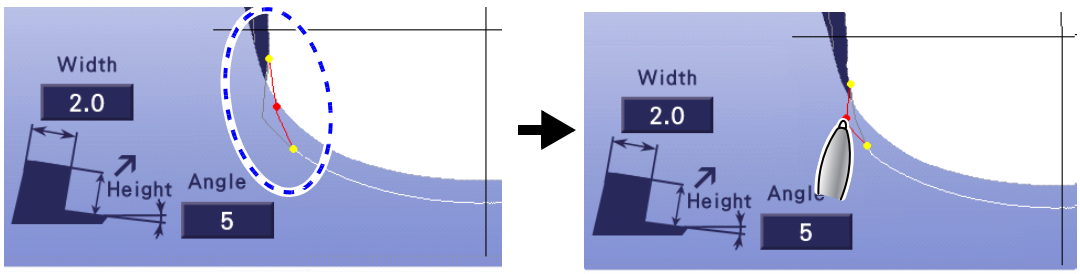
Height

● When dragging the middle handle to specify the step height

1) Drag the handles at both ends to specify the step change area.
2) Drag the middle handle to specify the partial step height.



Partial step data can be corrected more precisely by breaking the correction into a number of smaller steps.

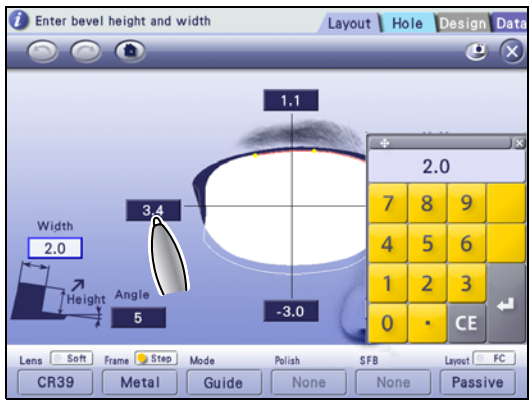


- When using the numeric keypad to specify the partial step height

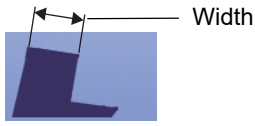
  [Height] fields (four positions)

  → (Setting range: 0.5 to 5.0 mm)

  These fields are displayed only when the magnification is set to ×1 or ×1.5.

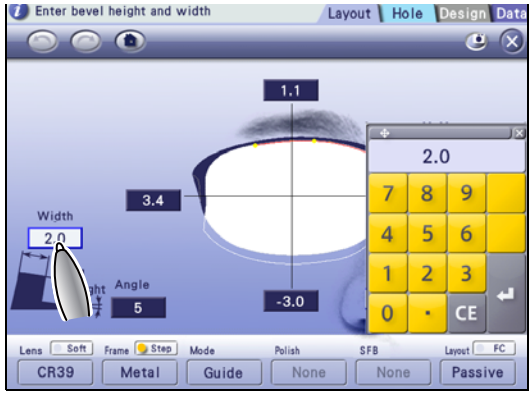


- Editing the partial step width

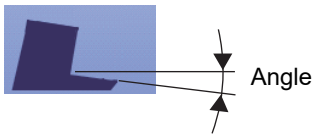


[Width] field

→ (Setting range: 0.5 to 5.0 mm)

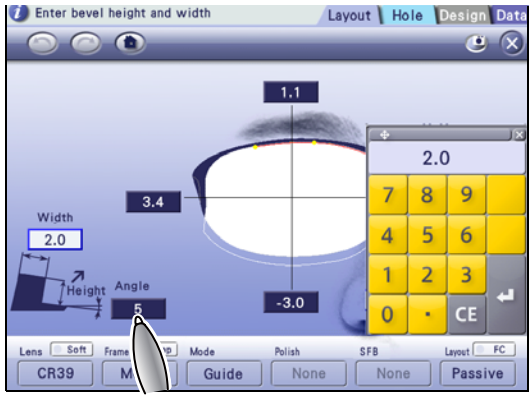


- Editing the partial step angle



[Angle] field

→ (Setting range: 5 to 15°)



5.5 Initial Screen Customize Function

The initial screen customize function specifies and saves the items that the customer normally uses so that they are initially displayed on each screen.

The default values can be set by the parameters.

"Default setting" (page 184)

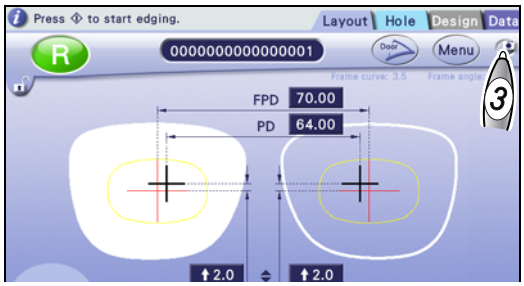
◆ Saving the initial screen

1 Display the screen for which the initial settings are to be saved.

2 Set each item as desired.

3 

The settings on the screen are saved.



◆ Items to be saved

Items listed below are saved (numerics are not saved).

Screen	Item/Button
Layout screen	• FPD/DBL • PD/1/2PD • Optical center height (⬍ /BT ⬍ /PD ⬍) • Lens material (CR39/Hi-index/Polyca./Acrylic/Trivex/Urethane/Glass) • Frame type (Metal/Plastic/Optyl/Two Point/Nylor) • Processing mode (Auto/Guide/Flat) • Polish setting • SFB setting • Layout mode (Active/Passive) • Soft processing mode • Bevel type (Normal/Mini bevel/Hi-curve/Custom) • Step processing mode
Hole edit screen	• Horizontal reference position • Vertical reference position
Shape edit screen	• Step (0.01/0.25/0.50/Tenkey) • Eye image (man, child, and woman) On/Off
Partial grooving / partial beveling screen	• Partial grooving or partial beveling
Design cut screen	• Entry fields On/Off • Edge angle
Facet screen	• Facet shape • Base facet
Step edit screen	• Step width • Step height • Step angle

6 SETTING AND TECHNICAL INFORMATION

Contents described in this chapter

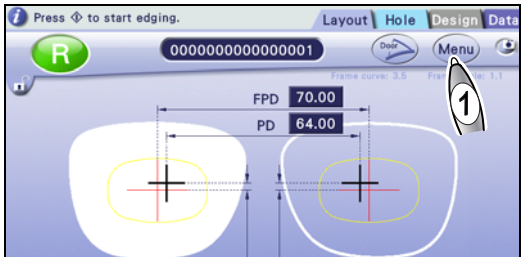
6.1 Parameter Setting

Contents described in this section

6.1.1 Operation on menu screen

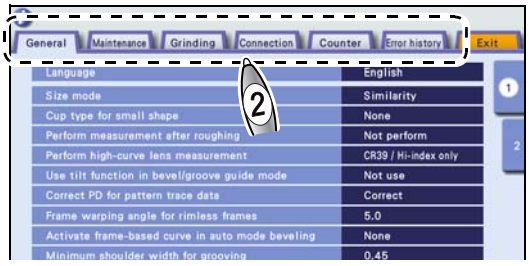
1 Menu

→Menu screen



2 [General], [Maintenance], [Grinding], [Connection], [Counter], or [Error history]

→Selected screen



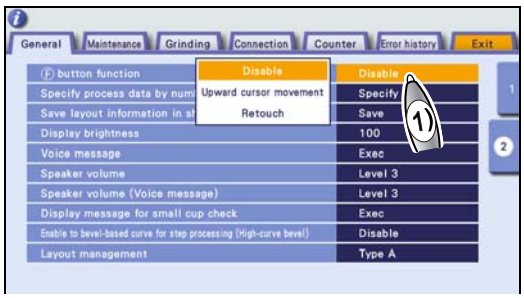
3 Change the parameter settings.

1) Press the entry field of the desired parameter.

➔Pop-up menu or 

2) Change the setting.

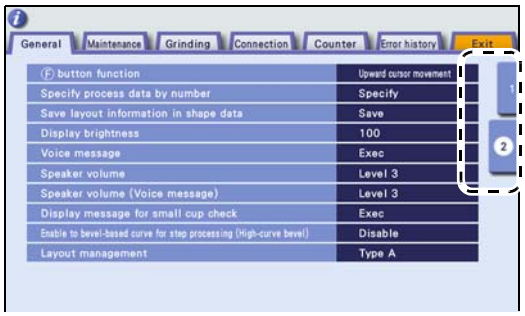
- Select the desired item from the pop-up menu.



- Entry a value with the numeric keypad.

● [General]

There are two pages. To switch the page, press tab 1 or 2 on the right of the screen.



● [Grinding]

Select the desired item from the categories listed on the left of the screen.

The item marked with ▶ can be expanded to display further items.

4 [Exit]

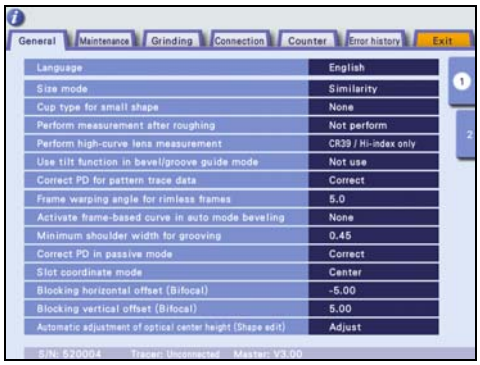
➔Layout screen

6.1.2 Setting parameters

- The underlined setting options in bold indicate the factory settings.
- Unless otherwise specified, the numerical unit is mm.
- Depending on the type or state of the instrument, some parameters are not displayed.

◆ General

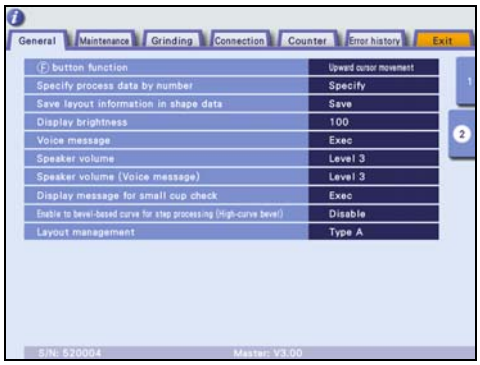
General-1



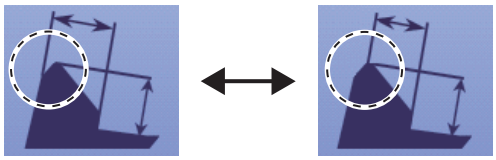
No.	Item	Setting options
A-01	Language	**English**
		Selects the language displayed on the screen.
A-02	Size mode	**Similarity** / Concentric
		Selects the method to change the shape when the size value is changed.
A-03	Cup type for small shape	**None** / Mini cup / Nano cup + supporter / Nano cup
		Selects the cup type for small shape. * When using the min cup or nano cup, the parameter needs to be set. Consult our service personnel.
A-04	Perform measurement after roughing	**Not perform**, Perform, CR39 / Hi-index only
		Selects whether to measure the lens after roughing.
A-05	Perform high-curve lens measurement	Not perform, Perform, **CR39 / Hi-index only** (PLB-8S) Not perform, Perform, **CR39 / Hi-index / Glass only** (PLB-2R8S only)
		Selects whether to measure a high base curve lens.
A-06	Use tilt function in bevel/groove guide mode	**Not use** / Use
		Selects whether to use the tilt function in guide beveling or guide grooving.
A-07	Correct PD for pattern trace data	Not correct / **Correct**
		Selects whether to correct PD according to pattern trace data.
A-08	Frame warping angle for rimless frames	**[5.0]** Setting range: 0.0 to 30.0
		Sets the frame warping angle when [Two Point] or [Nylor] is selected.
A-09	Activate frame-based curve in auto mode beveling	**None** / Exec
		Selects whether to perform auto beveling based on the frame curve. When [Exec] is selected, the lens is beveled based on the frame curve.

A-10	Minimum shoulder width for grooving	**0.45** Setting range: 0.00 to 1.00
		Sets the thinnest lens edge for grooving.
A-11	Correct PD in passive mode	Not correct / **Correct**
		Selects whether to correct PD in Passive mode.
A-12	Slot coordinate mode	**Center** / Edge
		Selects slot coordinate mode.
A-13	Blocking horizontal offset (Bifocal)	**-5.00** Setting range: -10.00 to +10.00
		Sets the blocking horizontal offset.
A-14	Blocking vertical offset (Bifocal)	**5.00** Setting range: -10.00 to +10.00
		Sets the blocking vertical offset.
A-15	Automatic adjustment of optical center height (Shape edit)	Not adjust / **Adjust**
		Selects whether to automatically adjust the optical center height when shape is changed.

General-2



No.	Item	Setting options
B-01	[F] button function	Disable / **Upward cursor movement** / Retouch
		Selects the [F] button function.
B-02	Specify process data by number	Not specify / **Specify**
		Selects whether to use the function to load the desired shape data by specifying its name. * This parameter is displayed only when either of “RS-232C (COM1 port)” or “Ethernet (LAN port)” is set to any option other than [None] and “RS-232C (COM3 port)” is set to [None] on the Connection screen.
B-03	Save layout information in shape data	Not save / **Save**
		Selects whether to save the layout data along with the shape data to the internal memory.
B-04	Display brightness	**100** Setting range: 0 (dark) to 100 (bright)
		Sets the display brightness.
B-05	Voice message	None / **Exec**
		Selects whether to use the voice message function.

B-06	Speaker volume	**Level 3** Mute / Level 1 to Level 5 Sets the speaker volume.
B-07	Speaker volume (voice message)	**Level 3** Mute / Level 1 to Level 5 Sets the voice message volume.
B-08	Display message for small cup check	None / **Exec** For small shape cup mode without using a supporter, selects whether to display a message reminding the user to change the lens adapter and lens clamp. * This parameter is displayed only when “Cup type for small shape” is set to [Mini cup] or [Nano cup].
B-09	Enable to bevel-based curve for step processing (High-curve bevel)	**Disable** / Enable Selects whether to set the step width from the lens front surface or from the bevel position. The display of the bevel position on the step edit screen is toggled as shown below.  Disable Enable * Note that custom beveling is always based on bevel curve.
B-10	Layout management	**Type A** / Type B When this parameter is set to [Type B], the parameters of all the connected instruments must be set to [Type B]. When the connected instrument does not have this parameter, or a manual blocker such as the CE-1 or CE-9 is used, select [Type A]. If the setting is incorrect, the PD when the lenses are set in frames may not satisfy the specifications.

◆ Maintenance

Maintenance		
		
Item	**Button**	**Details**
Replace-ment	Drill	Replaces the drill bit. *"7.4 Drill Bit Replacement" (page 228)*
Dressing	Main wheel	Dresses the main wheel. *"7.5 Wheel Dressing" (page 230)*
	SFB wheel	Dresses the safety beveling wheel. *"7.5 Wheel Dressing" (page 230)*
	Grooving wheel	Dresses the grooving wheel. *"7.5 Wheel Dressing" (page 230)*
	Step wheel	Dresses the step beveling wheel. *"7.5 Wheel Dressing" (page 230)*
	Cleaning	Cleans the processing chamber. *"7.3 Cleaning" (page 225)*
Shape for adjustment	Circle 45	Loads the circle 45 internal data. *"6.4.1 Loading internal data" (page 209)*
	Square 45	Loads the square 45 internal data. *"6.4.1 Loading internal data" (page 209)*
	Rectangle 50x25	Loads the rectangle 50 × 25 internal data. *"6.4.1 Loading internal data" (page 209)*
	Confirmation (Hole)	Loads internal data for drilling confirmation. *"6.4.1 Loading internal data" (page 209)*
Calibration	Periphery meas. (RMU)	Calibrates periphery measurement (RMU). *"6.3.1 Periphery measurement (RMU) calibration" (page 206)*
	Surface meas. (LMU)	Calibrates surface measurement (LMU). *"6.3.2 Surface measurement (LMU) calibration" (page 207)*
	Depth	Performs calibration for hole depth. *"6.3.3 Hole depth calibration" (page 208)*

Item		Setting options
Message count	Water replacement	**On** / Off **[70]** Setting range: 10 to 1,000
		Selects whether to display a message prompting the user to replace the cooling water in the tank. After the specified number of lenses are processed, the message is displayed.
	Drill	**On** / Off **[1000]** Setting range: 10 to 10,000
		Selects whether to display a message prompting the user to replace the drill bit. After the specified number of lenses are processed, the message is displayed.

◆ Grinding

Adjust		
		
No.	Item	Setting options
C-01	Size	**0.00**
		Adjusts the finish size for all lens materials. Increasing the value increases the finish size. *"6.4.2 Size adjustment" (page 210)* To adjust the size for each combination of lens material and frame type, see *" Size preset" (page 183)*.
C-02	Vertical boxed size (Bevel)	**0.00**
		Adjusts the vertical size of the shape. Increasing the value increases the vertical size of the shape. *"6.4.3 Vertical size (bevel) adjustment" (page 211)*
C-03	Axis	**0.00**
		Adjusts the axis. Increasing the value tilts the axis down on the right when viewed from the front surface (convex surface). *"6.4.4 Axis adjustment" (page 212)*
C-04	Bevel position	**0.00**
		Adjusts the bevel position in auto beveling as desired. Increasing the value moves the bevel toward the rear surface. *"6.4.5 Bevel position adjustment" (page 214)*

C-05	Groove position	**0.00** Adjusts the groove position in auto grooving as desired. Increasing the value moves the groove toward the rear surface. *"6.4.6 Groove position adjustment" (page 215)*
C-06	Depth	**0.00** Adjusts the groove depth. Increasing the value deepens the groove. *"6.4.7 Groove depth adjustment" (page 216)*
C-07	Hi-curve-Bevel position	**0.00** Adjusts the high base curve bevel position. Increasing the value moves the bevel toward the rear surface.
C-08	Hole-Drill bit diameter	**0.80** Adjusts the diameter of the drill bit attached to the drilling and grooving unit.
C-09	Hole-Flute length	**6.0** Sets the nominal flute length of a drill bit. Enter the value that is smaller than the flute length by 0.5 mm.
C-10	Hole-Diameter	**0.00** Adjusts the hole diameter. Increasing the value enlarges the hole.
C-11	Hole-Depth	**0.0** Adjusts the hole depth. Increasing the value deepens the hole.
C-12	Wheel rotation speed-Rough-Trivex	**Speed 4** Setting range: Speed 2 to Speed 6 Sets the wheel rotation speed for when roughing Trivex lenses. Increasing the value makes the speed faster.
C-13	Wheel rotation speed-Rough-Urethane	**Speed 4** Setting range: Speed 2 to Speed 6 Sets the wheel rotation speed for when roughing polyurethane lenses. Increasing the value makes the speed faster.
C-14	Wheel rotation speed-Finish-Urethane	**Speed 4** Setting range: Speed 2 to Speed 6 Sets the wheel rotation speed for when finishing polyurethane lenses. Increasing the value makes the speed faster.

SFB setting-Small		
		
No.	Item	Setting options
D-01	Rear, Bevel	**0.3** Sets the safety bevel amount for the lens rear edge in beveling.
D-02	Front, Bevel	**0.3** **Exec**/None Sets the safety bevel amount for the lens front edge in beveling. When [None] is selected, safety beveling for front edge is not performed.
D-03	Rear, Flat	**0.3** Sets the safety bevel amount for the lens rear edge in flat edging.
D-04	Front, Flat	**0.3** Sets the safety bevel amount for the lens front edge in flat edging.

SFB setting-Medium		
		
No.	Item	Setting options
D-05	Rear, Bevel	**0.4** Sets the safety bevel amount for the lens rear edge in beveling.
D-06	Front, Bevel	**0.3** **Exec**/None Sets the safety bevel amount for the lens front edge in beveling. When [None] is selected, safety beveling for front edge is not performed.
D-07	Rear, Flat	**0.4** Sets the safety bevel amount for the lens rear edge in flat edging.

D-08	Front, Flat	**0.3** Sets the safety bevel amount for the lens front edge in flat edging.

SFB setting-Large		
		
No.	Item	Setting options
D-09	Rear, Bevel	**0.5** Sets the safety bevel amount for the lens rear edge in beveling.
D-10	Front, Bevel	**0.3** **Exec**/None Sets the safety bevel amount for the lens front edge in beveling. When [None] is selected, safety beveling for front edge is not performed.
D-11	Rear, Flat	**0.5** Sets the safety bevel amount for the lens rear edge in flat edging.
D-12	Front, Flat	**0.3** Sets the safety bevel amount for the lens front edge in flat edging.

SFB setting-Special		
		
No.	Item	Setting options
D-13	Rear, Bevel	**0.3** Sets the safety bevel amount for the lens rear edge in beveling.

D-14	Front, Bevel	**0.3** **Exec**/None
		Sets the safety bevel amount for the lens front edge in beveling. When [None] is selected, safety beveling for front edge is not performed.
D-15	Ratio, Bevel [%]	**30**
		Sets the ratio (%) of the safety bevel amount for the lens rear edge on the nasal side in beveling.
D-16	Rear, Flat	**0.3**
		Sets the safety bevel amount for the lens rear edge in flat edging.
D-17	Front, Flat	**0.3**
		Sets the safety bevel amount for the lens front edge in flat edging.
D-18	Ratio, Flat [%]	**30**
		Sets the ratio (%) of the safety bevel amount for the lens rear edge on the nasal side in flat edging.

"Size preset" allows the lens finish size to be set individually for each lens material and frame type. Increasing the value increases the finish size.

Size preset

No.	Item	Setting options
E-01	Metal-CR39 / Hi-index	**0.00**
		Adjusts the beveling size. Frame: Metal Lens material: CR39 / Hi-index
E-02	Metal-Polyca. / Acrylic / Trivex / Urethane	**0.00**
		Adjusts the beveling size. Frame: Metal Lens material: Polyca. / Acrylic / Trivex / Urethane
E-03	Metal-Glass	**0.00**
		Adjusts the beveling size. Frame: Metal Lens material: Glass
E-04	Plastic-CR39 / Hi-index	**0.00**
		Adjusts the beveling size. Frame: Plastic Lens material: CR39 / Hi-index

E-05	Plastic-Polyca. / Acrylic / Trivex / Urethane	**0.00** Adjusts the beveling size. Frame: Plastic Lens material: Polyca. / Acrylic / Trivex / Urethane
E-06	Plastic-Glass	**0.00** Adjusts the beveling size. Frame: Plastic Lens material: Glass
E-07	Optyl-CR39 / Hi-index	**0.00** Adjusts the beveling size. Frame: Optyl Lens material: CR39 / Hi-index
E-08	Optyl-Polyca. / Acrylic / Trivex / Urethane	**0.00** Adjusts the beveling size. Frame: Optyl Lens material: Polyca. / Acrylic / Trivex / Urethane
E-09	Optyl-Glass	**0.00** Adjusts the beveling size. Frame: Optyl Lens material: Glass
E-10	Two Point / Nylor-CR39 / Hi-index	**0.00** Adjusts the flat edging size. Lens material: CR39 / Hi-index
E-11	Two Point / Nylor-Polyca. / Acrylic / Trivex / Urethane	**0.00** Adjusts the flat edging size. Lens material: Polyca. / Acrylic / Trivex / Urethane
E-12	Two Point / Nylor-Glass	**0.00** Adjusts the flat edging size. Lens material: Glass

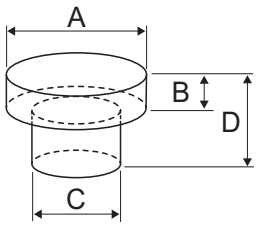
Default setting

No.	Item	Setting options
F-01	FPD	**70.00** Sets the default FPD.

F-02	DBL	**18.00** Sets the default of DBL.
F-03	PD	**62.00** Sets the default PD.
F-04	Optical center height	↕ **2.0** Sets the default optical center height (⬍).
F-05	Active side (R/L)	**Received**, R, L Selects whether the right shape or left shape is displayed when shape data is loaded. • Received: Right shape (However, the left shape is displayed when only the left shape data is received.) • R: Right shape • L: Left shape
F-06	Layout mode	**Received**, Active, Passive Sets the default of the layout mode. • Received: Same as that of the loaded data • Active: Active mode • Passive: Passive mode
F-07	Soft edging mode	**None**, Exec, Glass Sets the default of soft processing mode. • None: Soft processing mode is disabled when shape data is loaded from the internal memory. • Exec: Soft processing mode is enabled when shape data is loaded from the internal memory. • Glass: When the lens material is set to [Glass], soft processing mode is automatically enabled.
F-08	Mini bevel height	**0.6** Sets the default mini bevel height in high base curve beveling. • Increasing the value increases the bevel height. • Decreasing the value decreases the bevel height.
F-09	Groove depth	**0.3** Sets the default groove depth. Auto processing is performed with this value.
F-10	Groove width	**0.6** Sets the default groove width. Auto processing is performed with this value.
F-11	Hi-curve-Preset 1	Sets the default of Preset 1. Front bevel height **0.3** Rear bevel height **0.6** Top width **0.3** Bevel position **0.0** Tilt **0.5**
F-12	Hi-curve-Preset 2	Sets the default of Preset 2. Front bevel height **0.3** Rear bevel height **1.3** Top width **0.3** Bevel position **0.0** Tilt **0.5**

F-13	Hi-curve-Preset 3	Sets the default of Preset 3. Front bevel height **0.3** Rear bevel height **1.3** Top width **0.9** Bevel position **0.0** Tilt **0.5**
F-14	Custom-Preset 1	Sets the default of Preset 1. Front bevel height **0.4** Rear bevel height **0.4** Top width **0.3**
F-15	Custom-Preset 2	Sets the default of Preset 2. Front bevel height **0.6** Rear bevel height **1.0** Top width **0.3**
F-16	Custom-Preset 3	Sets the default of Preset 3. Front bevel height **0.6** Rear bevel height **1.0** Top width **0.9**

Jewel hole size



A = Outer hole (Diameter)
B = Outer hole (Depth)
C = Inner hole (Diameter)
D = Inner hole (Depth)

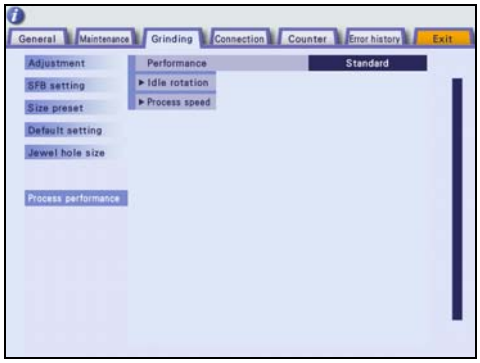
Only values that satisfy A ≥ C and D ≥ B can be entered.

No.	Item	Setting options
G-01	Jewel 1-Outer hole-Diameter	**1.80** Sets the diameter (A) of the outer hole
G-02	Jewel 1-Outer hole-Depth	**0.6** Sets the depth (B) of the outer hole.
G-03	Jewel 1-Inner hole-Diameter	**1.40** Sets the diameter (C) of the inner hole.
G-04	Jewel 1-Inner hole-Depth	**1.9** Sets the depth (D) of the inner hole.
G-05	Jewel 2-Outer hole-Diameter	**2.70** Sets the diameter (A) of the outer hole

G-06	Jewel 2-Outer hole-Depth	**0.8** Sets the depth (B) of the outer hole.
G-07	Jewel 2-Inner hole-Diameter	**2.10** Sets the diameter (C) of the inner hole.
G-08	Jewel 2-Inner hole-Depth	**2.6** Sets the depth (D) of the inner hole.
G-09	Jewel 3-Outer hole-Diameter	**2.70** Sets the diameter (A) of the outer hole
G-10	Jewel 3-Outer hole-Depth	**0.8** Sets the depth (B) of the outer hole.
G-11	Jewel 3-Inner hole-Diameter	**2.10** Sets the diameter (C) of the inner hole.
G-12	Jewel 3-Inner hole-Depth	**2.6** Sets the depth (D) of the inner hole.

Increasing the value of “Idle rotation” when [Custom] is selected makes the processed lens size more precise, however, it increases the lens processing time.

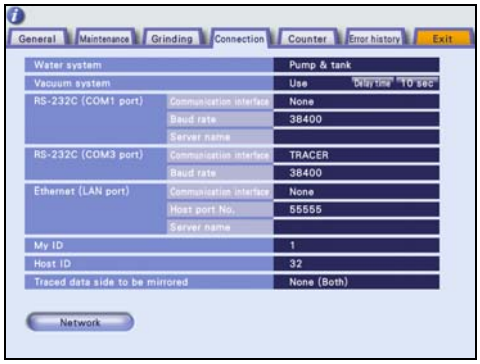
Process performance



No.	Item	Setting options
H-01	Performance	**Standard** / Custom • Standard: Sets the idle rotation number and the speed in soft processing mode. (For H-02 to H-18, they cannot be changed.) • Custom: Sets the idle rotation number (H-02 to H-17) and the speed in soft processing mode (H-18).
H-02	Idle rotation-Finish-CR39 / Hi-index	**1** Sets how many times the lens will be rotated after processing is complete.
H-03	Idle rotation-Finish-Polyca. / Acrylic / Trivex	**1** Sets how many times the lens will be rotated after processing is complete.
H-04	Idle rotation-Finish-Urethane	**1** Sets how many times the lens will be rotated after processing is complete.

H-05	Idle rotation-Finish-Glass	**2** Sets how many times the lens will be rotated after processing is complete.
H-06	Idle rotation-Finish-SFB	**2** Sets how many times the lens will be rotated after processing is complete.
H-07	Idle rotation-Polish-CR39, Bevel	**2** Sets how many times the lens will be rotated after processing is complete.
H-08	Idle rotation-Polish-CR39, Flat	**2** Sets how many times the lens will be rotated after processing is complete.
H-09	Idle rotation-Polish-Hi-index, Bevel	**2** Sets how many times the lens will be rotated after processing is complete.
H-10	Idle rotation-Polish-Hi-index, Flat	**2** Sets how many times the lens will be rotated after processing is complete.
H-11	Idle rotation-Polish-Polyca. / Acrylic / Trivex / Urethane, Bevel	**2** Sets how many times the lens will be rotated after processing is complete.
H-12	Idle rotation-Polish-Polyca. / Acrylic / Trivex / Urethane, Flat	**2** Sets how many times the lens will be rotated after processing is complete.
H-13	Idle rotation-Polish-SFB	**2** Sets how many times the lens will be rotated after processing is complete.
H-14	Idle rotation-Polish-Special SFB	**4** Sets how many times the lens will be rotated after processing is complete.
H-15	Idle rotation-Groove	**2** Sets how many times the lens will be rotated after processing is complete.
H-16	Idle rotation-Hole	**1** Sets how many times the lens will be rotated after processing is complete.
H-17	Idle rotation-Step bevel	**2** Sets how many times the lens will be rotated after processing is complete.
H-18	Grinding speed-Reduction ratio for soft (CR39 / Hi-index / Acrylic)	**0.5** Sets the roughing speed in soft processing mode as a ratio of normal speed. Increasing the value makes it closer to normal speed.

◆ Connection

Connection


No.	Item	Setting options
I-01	Water system	**Pump & tank**, Lfu 220, Direct water
		Selects the feedwater system to be connected.
I-02	Vacuum system	Not use, **Use** Delay time: **10 s** 0 to 300 s
		Sets how long the deodorizer connected to the outlet for vacuum cleaner will be kept on after processing is complete. * [Delay time] can be set only when “Use” is selected.
I-03	RS-232C (COM1 port)-Communication interface	None, **N-LAN**, VCA-B, VCA-C
		Selects the external communication method using the RS-232C port. • None: No external communication is performed. • N-LAN: Nidek LAN format for when the ICE-1500, ICE-1, or such is connected • VCA-B: VCA format for when processing a lens according to the 3-D circumference recalculated from the frame curve instead of the received circumference in the VCA (OMA) communication • VCA-C: VCA format for when FPD is converted from DBL sent in the VCA (OMA) communication.
I-04	RS-232C (COM1 port)-Baud rate	9600, **38400**
		Sets the bit transmission speed during communication.
I-05	RS-232C (COM1 port)-Server name	**Blank**, ICE-1500, ICE-1, Other
		Changes the indication of the COM1/LAN button to the name of the connected instrument or such instead of [COM1].
I-06	RS-232C (COM3 port)-Communication interface	**None**, TRACER
		Selects the external communication method using the RS-232C port. • None: No external communication is performed. • TRACER: For when a tracer is connected
I-07	RS-232C (COM3 port)-Baud rate	9600, **38400**
		Sets the bit transmission speed during communication.

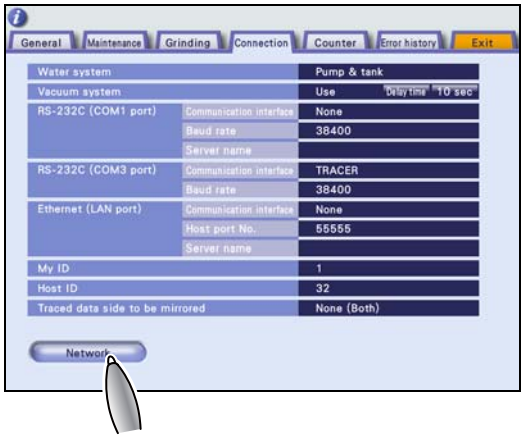
I-08	Ethernet (LAN port)-Communication interface	**None**, N-LAN, VCA-B, VCA-C
		Selects the method of the communication with another instrument or server using Ethernet. • None: Disables the communication function of the Ethernet port. • N-LAN: Nidek LAN format for when the ICE-1500, ICE-1, or such is connected • VCA-B: VCA format for when processing a lens according to the 3-D circumference recalculated from the frame curve instead of the received circumference in the VCA (OMA) communication • VCA-C: VCA format for when FPD is converted from DBL sent in the VCA (OMA) communication.
I-09	Ethernet (LAN port)-Host port No.	**55555**
		Sets the host port number for connection using Ethernet.
I-10	Ethernet (LAN port)-Server name	**Blank**, ICE-1500, ICE-1, iRx Server, Other
		Changes the indication of the RS-232C/Ethernet button to the name of the connected instrument or such instead of [LAN].
I-11	My ID	**1**
		Normally, the setting does not need to be changed. Change the number when it is used by another instrument.
I-12	Host ID	**32**
		Normally, the setting does not need to be changed.
I-13	Traced data side to be mirrored	R, L, **None (Both)**
		Sets whether to mirror the shape data received from the tracer. • R: Mirrors the right shape to the left side. • L: Mirrors the left shape to the right side. • None (Both): The trace data is not mirrored and each data for the right and left shape is saved. * For single-eye tracing, the shape of the traced side is mirrored regardless of this setting.

- Network setting

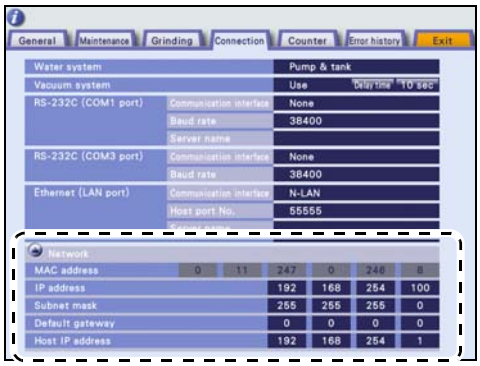
[Network]

→Network screen

For network setting, see *"6.2.4 Ethernet connection (Example: ICE-1500)" (page 203)*.



Network

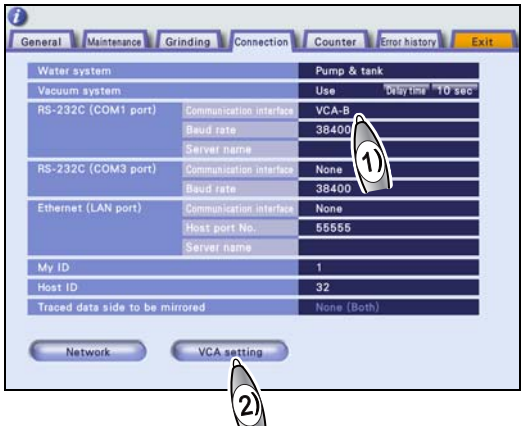


No.	Item	Setting options
J-01	MAC address	Displays the MAC address of the ME-1500.
J-02	IP address	Enters the IP address of the ME-1500.
J-03	Subnet mask	Enters the subnet mask suitable for the entered IP address.
J-04	Default gateway	Enters the IP address of the gateway when it is used in the network.
J-05	Host IP address	Enters the IP address of the intelligent blocker.

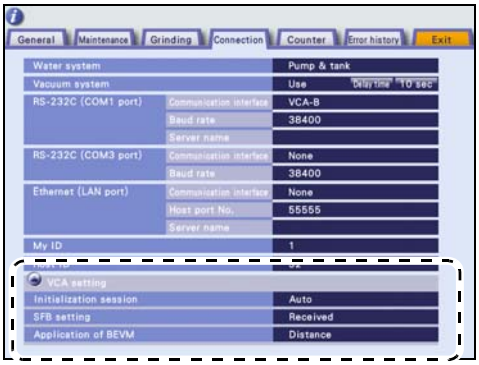
- VCA setting

1) Select [VCA-B] or [VCA-C] for the “RS-232C (COM1 port) Communication interface” parameter on the Connection screen.

2) [VCA setting]



VCA setting

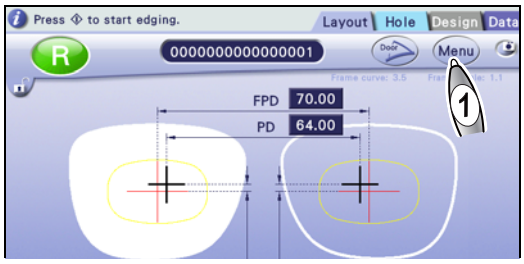


No.	Item	Setting options
K-01	Initialization session	**Auto**, Preset
		Selects auto initialization or preset initialization when “Communication interface” for RS-232C is set to [VCA-B] or [VCA-C].
K-02	SFB setting	**Received**, Small, Medium, Large
		Selects whether to safety bevel a lens with the specified width or fixed width when safety bevel data is received.
K-03	Application of BEVM	Offset, **Distance**
		Selects whether to set the bevel position by the distance from the front/rear surface or by the offset from the auto position.

6.1.3 Setting date and time

1 Menu

➔Menu screen



2 [Maintenance]

➔Maintenance screen

3 Time button

➔Date and time setting window

4 Select the item to be changed.

1) [Date format]

yyyy/mm/dd	Year/Month/Day
dd/mm/yyyy	Day/Month/Year
mm/dd/yyyy	Month/Day/Year

2) Each field of date and time

➔

3) [Set]

The settings are confirmed.

4)

➔Maintenance screen

5 [Exit]

➔Layout screen

6

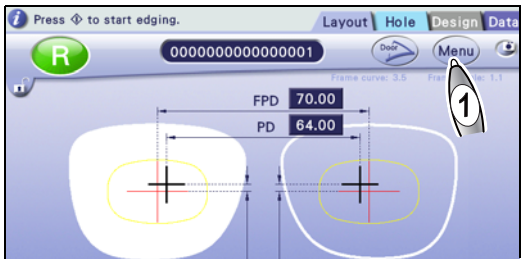
6.1.4 Displaying the number of processed lenses

■ The Counter screen displays the number of lenses that have been processed for each lens material and wheel type.

■ Items being displayed differ depending on the wheel configuration.

1 Menu

→Menu screen



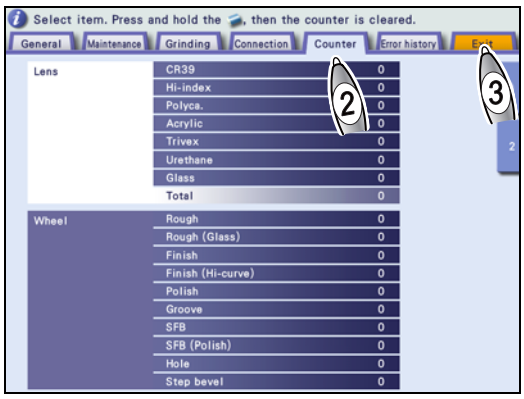
2 [Counter]

→Counter screen

The number of lenses that have been processed is displayed for each lens material and wheel type.

3 [Exit]

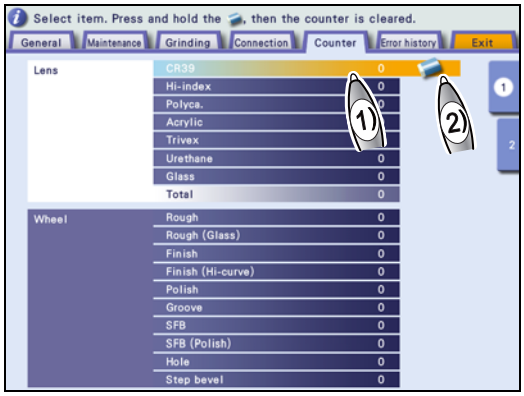
→Layout screen



● Resetting the number of each item to “0”

1) Select the desired item.

2) Press and hold .

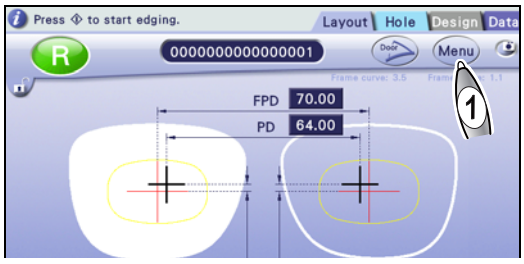


6.1.5 Displaying the maintenance monitor

- The maintenance monitor indicates the track record of use and predicted replacement time for each item.
- If the Track record value for any item exceeds 90%, the instrument will notify it immediately after start-up (only when “Notification” is set to “On”).
- It is recommended to replace the item whose Track record value has reached 100%. Contact Nidek or your authorized distributor for replacement.

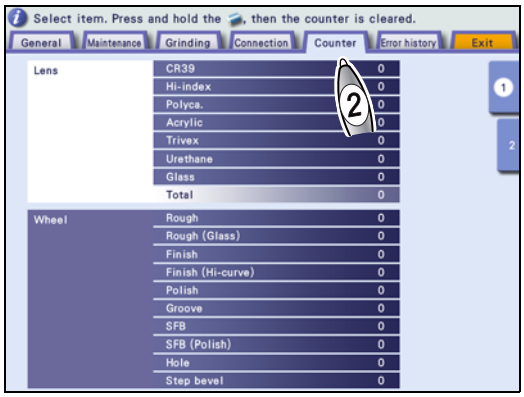
1 Menu

→Menu screen



2 [Counter]

→Counter screen



3 [2]

→Maintenance monitor

The track record of use and predicted replacement time are indicated for each item.

4 [Exit]

→Layout screen

- Changing the Lens cup number

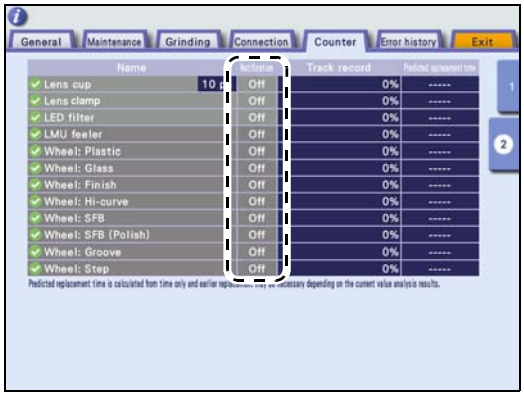
1) Press the Lens cup field.

➔ 

2) Enter a number with the numeric keypad.

Change the setting accordingly for the number of the lens cups in use.

- Changing the Notification setting



Pressing the Notification field for each item can switch its setting.

- Resetting the Track record value

Only for “Lens cup”, “Lens clamp”, and “LED filter”, pressing and holding the Track record field can reset the value.

Reset the Track record value only when the item has been replaced.

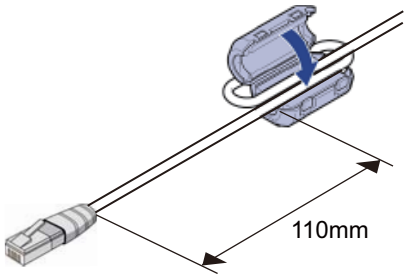
6.2 Connection

Contents described in this section

⚠ CAUTION

- Before connecting instruments, confirm that all instruments are turned off.
  “ Before use” (page 13)
- For the LAN cable, use an STP cable of category 5 or higher.
- When connecting the instruments directly with a LAN cable, use a cross cable.
- Do not use Ethernet in a network connected to an intranet or the Internet. Communication failure may result.

- For the connection settings, consult a person who has enough knowledge on network systems or our service personnel.
- When connecting the instruments with a VCA format communication interface, the settings differ depending on the connected instrument. Consult our service personnel.
- When connecting a LAN cable, attach the ferrite core to the position approximately 110 mm away from the LAN port of the instrument as shown to the right.

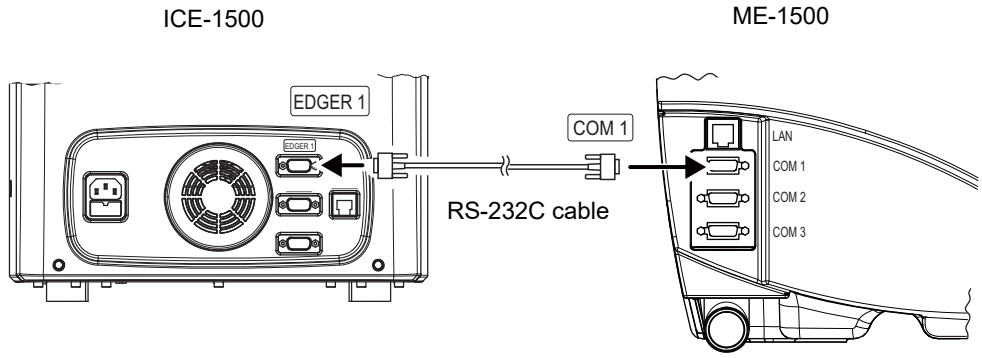


6.2.1 Connection with ICE-1500 (Mini Lab)

1 Connect the ME-1500 and ICE-1500.

Connect the provided RS-232C cable to the Edger1 port of the ICE-1500.

2 Connect the other end of the RS-232C cable to the COM1 port of the ME-1500.



3 Turn on the ME-1500 and ICE-1500.

4 Set the communication parameters of the ICE-1500.

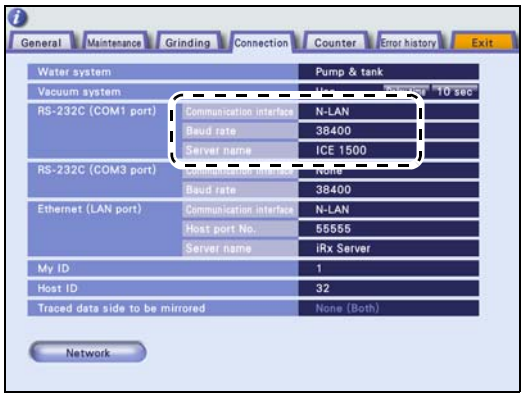
Set “System” to [Mini Lab] and “My ID” to “32” on the Connection screen, then check the setting of the RS-232C baud rate.

❖ For setting details, refer to the operator's manual for the ICE-1500.

5 Set the communication parameters of the ME-1500.

RS-232C (COM1 port)	
Communication interface	N-LAN
Baud rate	Same as that for the ICE-1500
Server name	ICE-1500

“♦ *Connection” (page 189)*

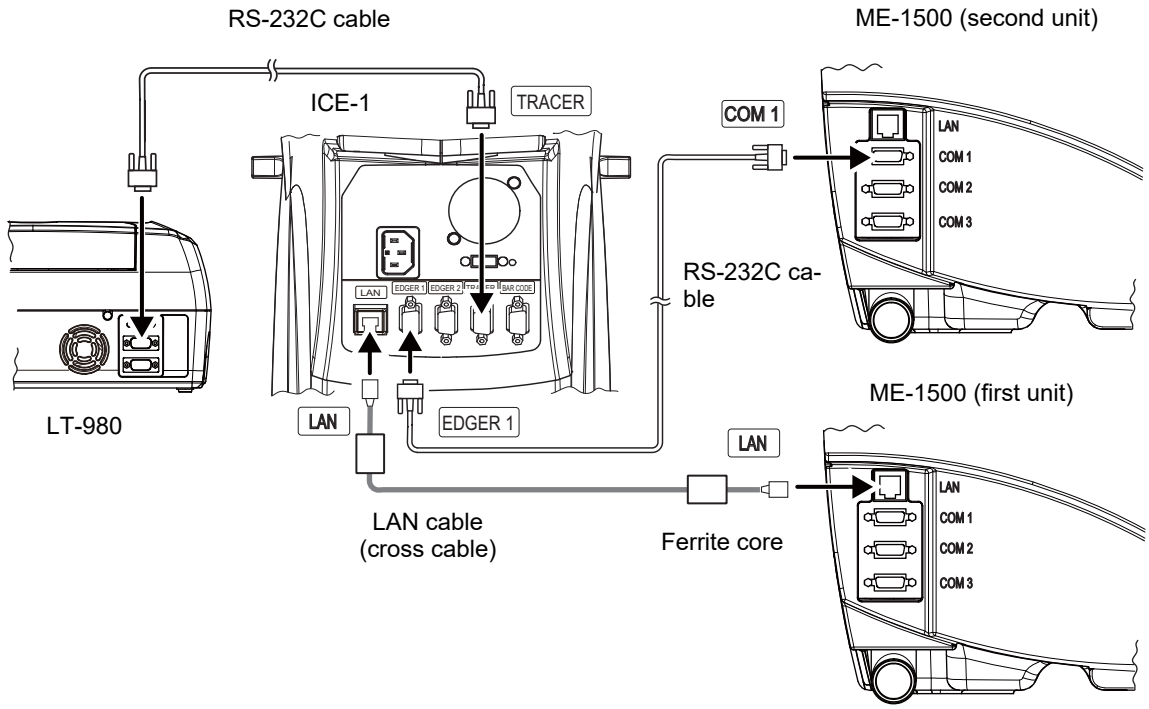


6.2.2 Connection with ICE-1 (Mini Lab)

1 Connect the ICE-1 and ME-1500.

1) ME-1500 (first unit): Connect the LAN cable provided with the ICE-1 or a LAN cable (cross cable) directly to the LAN ports of the ME-1500 and ICE-1.

2) ME-1500 (second unit): Connect the RS-232C cable (option) to the Edger1 port of the ICE-1. Connect the RS-232C cable to the COM1 port of the ME-1500.



2 Turn on the ICE-1 and ME-1500.

3 Set the communication parameters of the ICE-1.

Set “System” to [Mini Lab] and “My ID” to “32” on the Connection screen, then check the setting of the RS-232C baud rate.

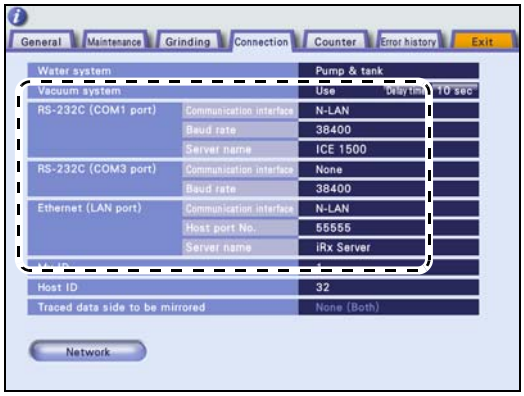
❖ For setting details, refer to the operator's manual for the ICE-1.

- Set the communication parameters of the first ME-1500 that is connected with a LAN cable.

4 Check the IP address of the ICE-1.

❖ For setting details, refer to the operator's manual for the ICE-1.

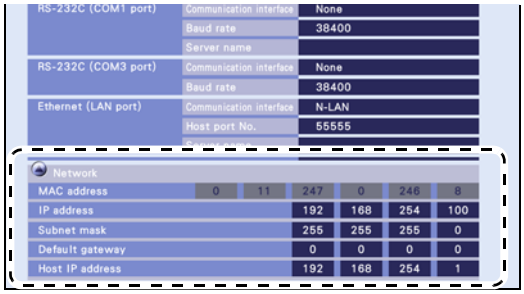
5 Set the communication parameters of the ME-1500.



RS-232C (COM1 port)	Communication interface	None
Ethernet (LAN port)	Communication interface	N-LAN
	Host port No.	55555 (default)
	Server name	ICE-1
My ID		1
Host ID		32

6 [Network]

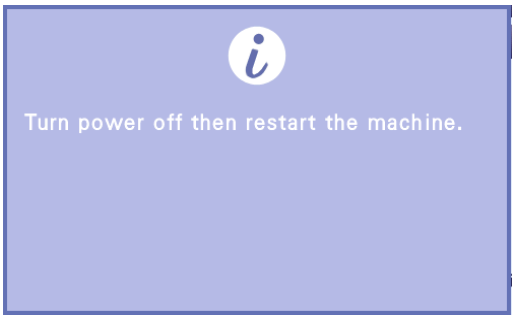
7 Set the “Network” parameters.



IP address	Enters the IP address of the ME-1500.
Subnet mask	Enters the subnet mask suitable for the entered IP address.
Default gateway	Enters the IP address of the gateway when it is used in the network.
Host IP address	Enters the IP address of the intelligent blocker.

8 [Exit]

Depending on the change in the communication settings, pressing [Exit] may display the message as shown to the right. In this case, turn off and on the power switch.

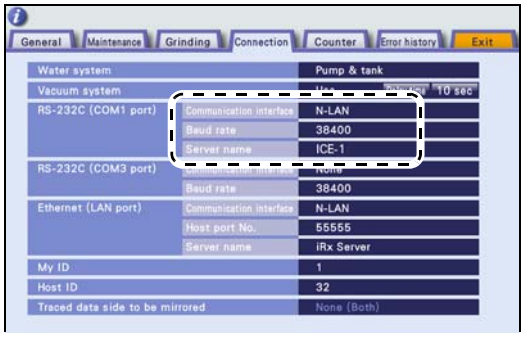


9 Set the communication parameters as necessary.

- Set the communication parameters of the second ME-1500 that is connected with the RS-232C cable.

10 Set the communication parameters of the ME-1500.

RS-232C (COM1 port)	
Communication interface	N-LAN
Baud rate	Same as that for the ICE-1
Server name	ICE-1



11 Connect the ICE-1 and LT-980 with the RS-232C cable provided with the LT-980.

12 Turn on the LT-980.

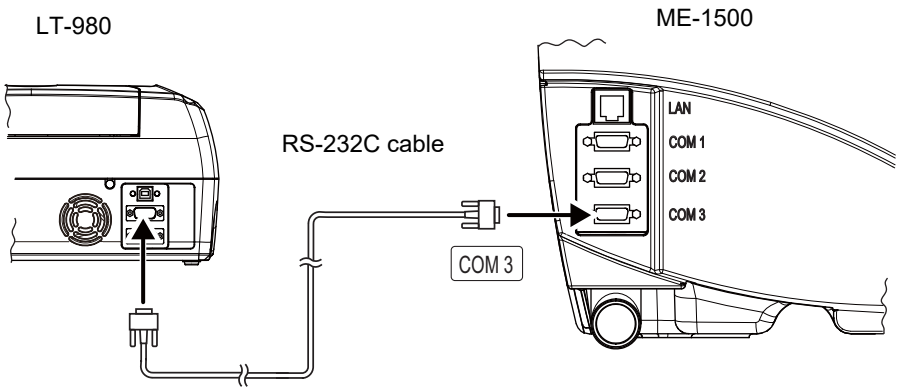
❖ For setting details, refer to the operator's manuals for the ICE-1 and LT-980.

6.2.3 Connection with LT-980

The communication speed of the LT-980 differs depending on the RS-232C port to be used or the settings. Consult our service personnel.

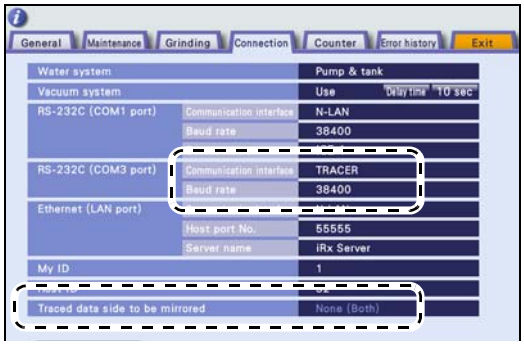
1 Connect the RS-232C cable provided with the LT-980 to the RS-232C port of the LT-980.

2 Connect the other end of the RS-232C cable to the RS-232C (COM3) port of the ME-1500.



3 Turn on the LT-980 and ME-1500.

4 Set the communication parameters of the ME-1500.



RS-232C (COM3 port)	Communication interface	TRACER
	Baud rate	Same as that for the LT-980
Traced data side to be mirrored		Sets whether to mirror the shape data received from the tracer.

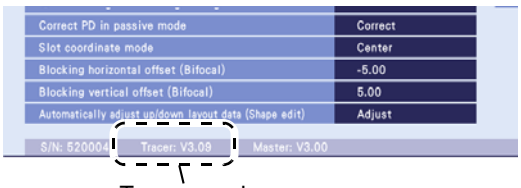
5 [Exit]

→Layout screen

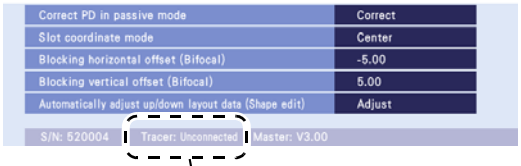
6 Menu

7 Confirm that the tracer version is displayed at the bottom of the General screen.

If communication is not performed normally because the tracer is not turned on or such, “Unconnected” is displayed.



Tracer version



Tracer is not connected.

6.2.4 Ethernet connection (Example: ICE-1500)

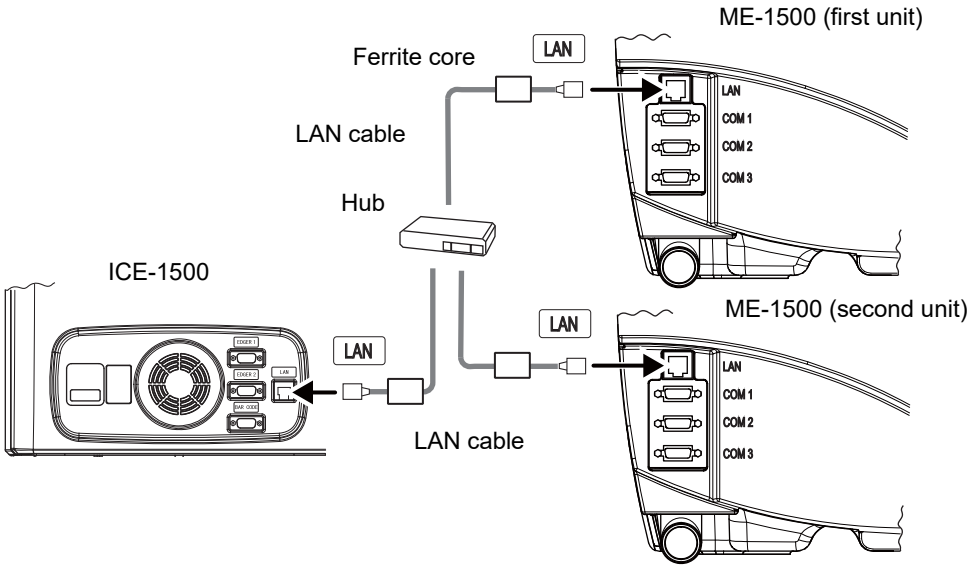
The setting procedure described here is for when configuring a small-scale network for which the ME-1500 is connected with the ICE-1500 or ICE-1.

The Ethernet connection can be configured only when any equipment other than a lens edger, blocker, and tracer is not connected in the network, and the network is not directly connected to the intranet or the Internet.

1 Connect one end of the LAN cable to the LAN port of the ICE-1500 and the other end to the network switch.

2 Connect one end of the LAN cable to the LAN port of the ME-1500 and the other end to the network switch.

Connect the second and subsequent ME-1500 in the same way.

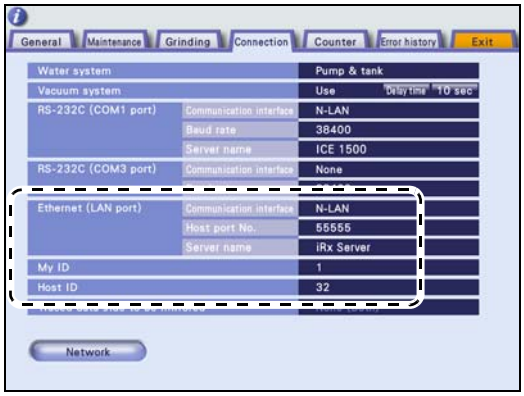


3 Turn on the ME-1500 and ICE-1500.

4 Check the IP address of the ICE-1500.

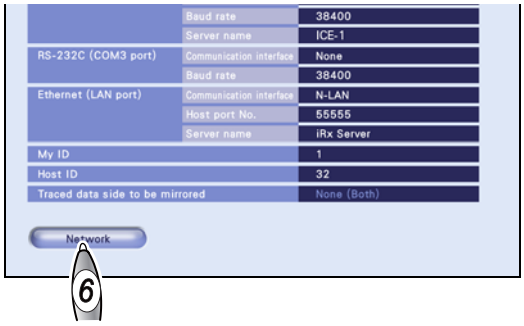
❖ For setting details, refer to the operator's manual for the ICE-1500.

5 Set the communication parameters of the ME-1500.

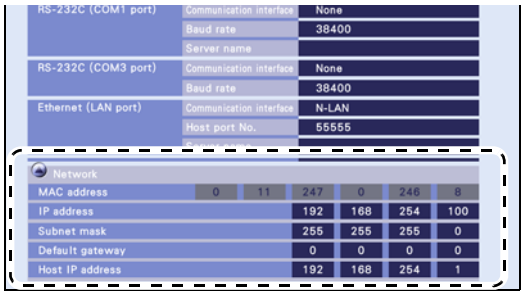


Ethernet (LAN port)	Communication interface	N-LAN
	Host port No.	55555 (default)
	Server name	ICE-1500
My ID		1
Host ID		32

6 [Network]



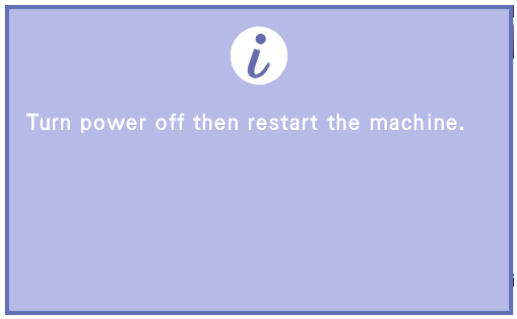
7 Set the “Network” parameters.



IP address	Enters the IP address of the ME-1500.
Subnet mask	Enters the subnet mask suitable for the entered IP address.
Default gateway	Enters the IP address of the gateway when it is used in the network.
Host IP address	Enters the IP address of the intelligent blocker.

8 [Exit]

Depending on the change in the communication settings, pressing [Exit] may display the message as shown to the right. In this case, turn off and on the power switch.



9 Set the communication parameters as necessary.

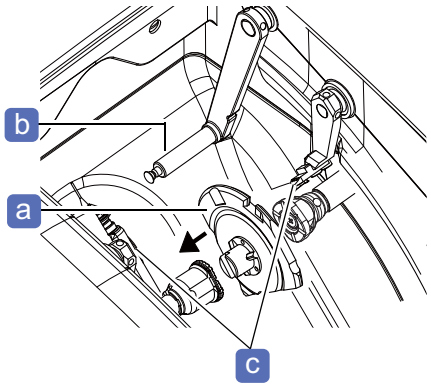
6.3 Calibration

Contents described in this section

⚠ CAUTION

Be careful not to get fingers caught when chucking the RMU/LMU calibration jig.

- The RMU/LMU calibration jig a is easily detached from the lens adapter, so it may fall into the processing chamber. Be sure to use both hands when attaching or removing the jig.
- Before calibration, clean the calibration jig, RMU feeler b, and LMU feelers c on both sides.
  If they are not clean, proper measurement may not be performed.

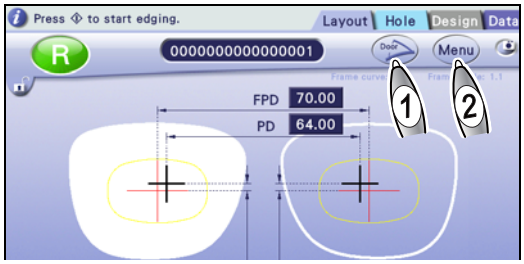


6.3.1 Periphery measurement (RMU) calibration

Perform the periphery measurement (RMU) calibration using the calibration jig.

1 Door

The processing chamber door opens.



2 Menu

→Menu screen

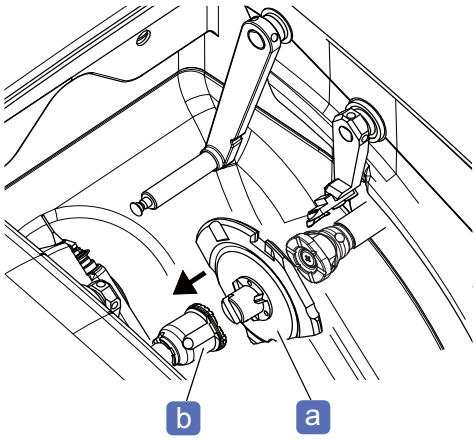
3 [Maintenance]

→Maintenance screen

4 Attach the RMU/LMU calibration jig to the lens adapter.

1) Insert the RMU/LMU calibration jig a into the lens adapter b and hold it by hand.

2) 
The jig is fastened.



5 [Periphery meas. (RMU)]

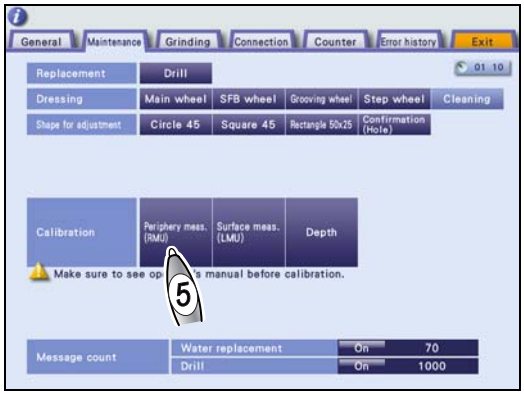
Calibration starts.

When calibration is complete, a beep sounds.

6 Press  to remove the jig while holding it by hand.

7 [Exit]

→Layout screen



6.3.2 Surface measurement (LMU) calibration

Perform the surface measurement (LMU) calibration using the calibration jig.

1 Perform Steps 1 to 4 in *"6.3.1 Periphery measurement (RMU) calibration" (page 206)*.

2 [Surface meas. (LMU)]

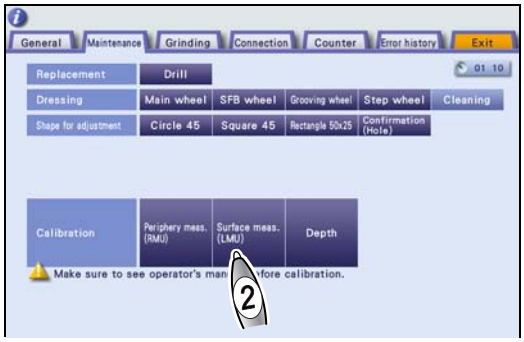
Calibration starts.

When calibration is complete, a beep sounds.

3 Press  to remove the jig while holding it by hand.

4 [Exit]

→Layout screen



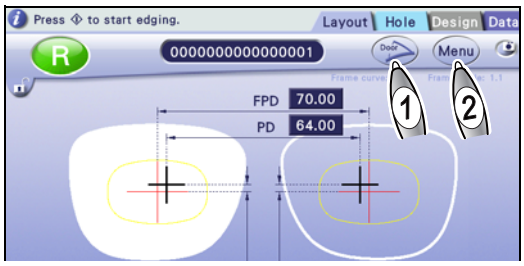
6.3.3 Hole depth calibration

⚠ CAUTION

Before calibration, clean the drill bit to remove any processing waste.
If the drill bit is not clean, calibration may not be performed properly.

1 Door

The processing chamber door opens.

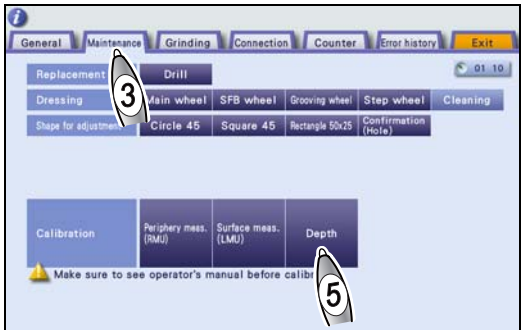


2 Menu

➔Menu screen

3 [Maintenance]

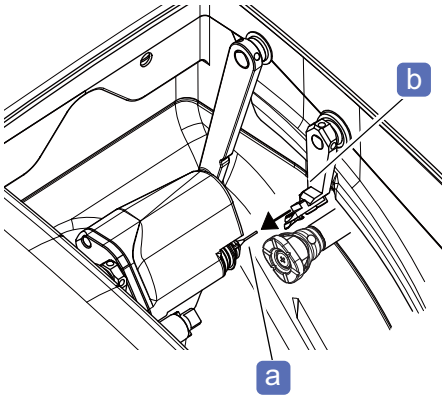
➔Maintenance screen



4 [Depth]

The drilling and grooving unit automatically moves forward, turns 90° clockwise, the drill bit a then moves to the drilling position. Measure the position of the drill bit tip with the LMU (surface measurement feeler) b on the right side.

When calibration is complete, a beep sounds.



5 [Exit]

➔Layout screen

6.4 Adjustment

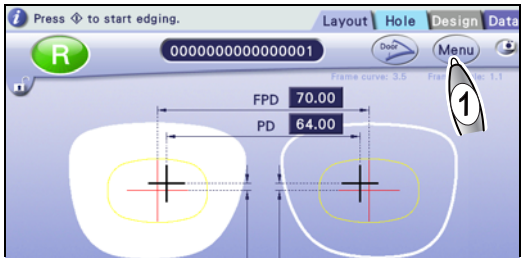
Contents described in this section

For each adjustment, prepare a CR39 lens with SPH -3.00 to -5.00 D lens as a trial lens.

6.4.1 Loading internal data

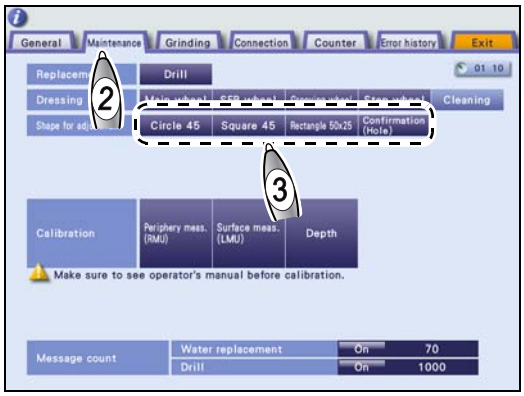
1 Menu

→Menu screen



2 [Maintenance]

→Maintenance screen



3 Press the desired [Shape for adjustment] button to load the shape.

[Circle 45]	Loads the circle 45 internal data.
[Square 45]	Loads the square 45 internal data.
[Rectangle 50x25]	Loads the rectangle 50 × 25 internal data.
[Confirmation (Hole)]	Loads internal data for drilling confirmation.

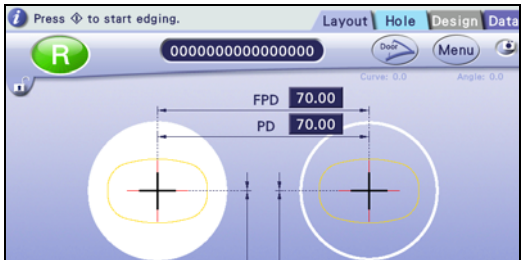
→Layout screen

6.4.2 Size adjustment

After repeated processing, lens finish size becomes larger than the specified size due to wear on the wheels or such. If this occurs, check the size and adjust it by changing the parameter value.

1 Load the circle 45 internal data.

"6.4.1 Loading internal data" (page 209)



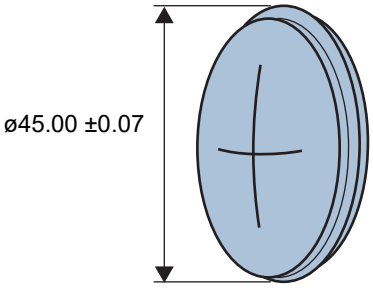
2 Set the size to "0.00", and bevel or flat edge a lens in auto processing mode.

"4.3.1 Auto beveling" (page 98)
"4.6 Flat Edging" (page 119)

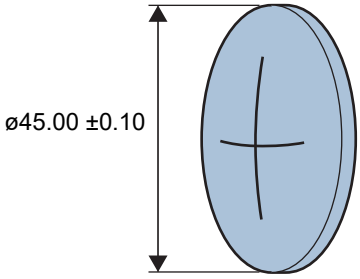
3 Measure the outer diameter of the processed lens to check the size.

If it is not within the range as shown below, adjust the size.

Beveled lens



Flat edged lens



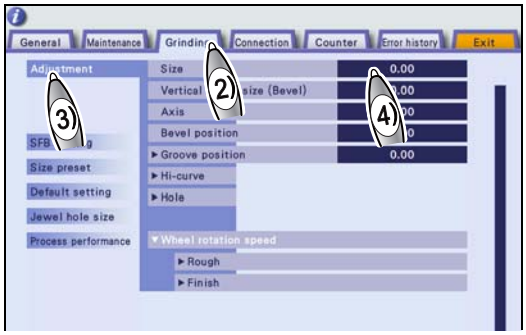
4 Adjust the size.

1) Menu

→Menu screen

2) [Grinding]

→Grinding screen



3) [Adjustment]

4) [Size] field

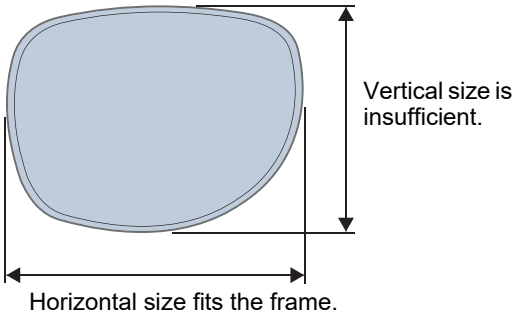
→ Difference between 45.00 mm (standard value) and measured outer diameter

Ex.— When the outer diameter is 45.20, enter -0.20.

5 Repeat Steps 1 to 4 until the outer diameter is within 45.00 ±0.07 mm (beveled lens) or 45.00 ±0.10 mm (flat edged lens).

6.4.3 Vertical size (bevel) adjustment

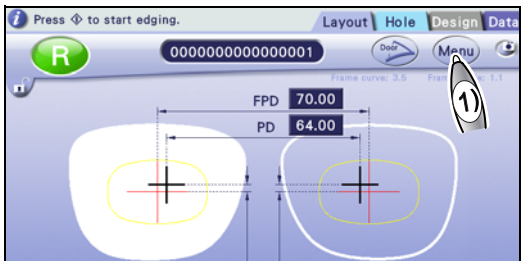
When the beveled lens size fits the frame horizontally, but is insufficient vertically, adjust the vertical size.



1 Adjust the vertical size (bevel).

1) Menu

→Menu screen



2) [Grinding]

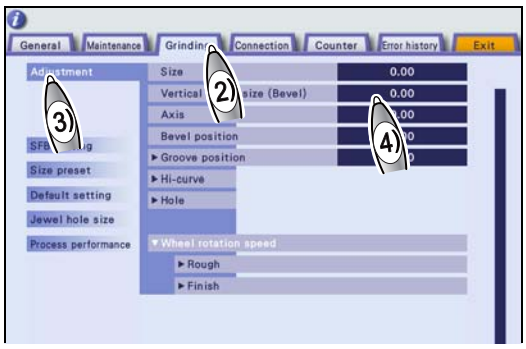
→Grinding screen

3) [Adjustment]

4) [Vertical boxed size (Bevel)] field

→

Ex.— Increasing the value by 0.20 increases the vertical size by 0.2 mm.



2 [Exit]

→Layout screen

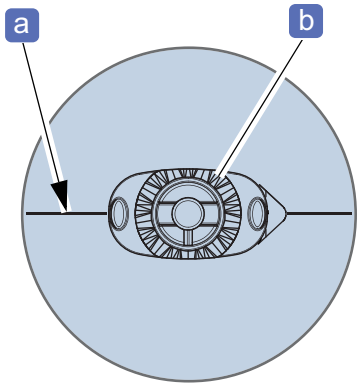
6

6.4.4 Axis adjustment

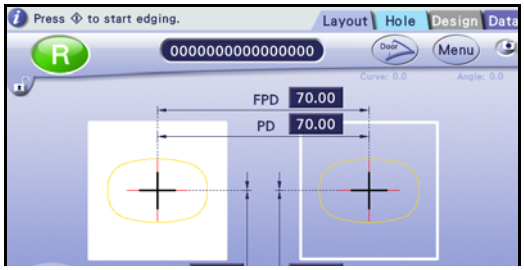
If axis shift occurs in the processed lens, follow the procedure below to adjust it.

1 Check for axis shift.

1) Draw a horizontal marking line a on the lens.
   Mark a straight horizontal line across the lens in the middle with a utility knife.
2) Block the lens with a pliable cup b while the marking line is aligned horizontally.



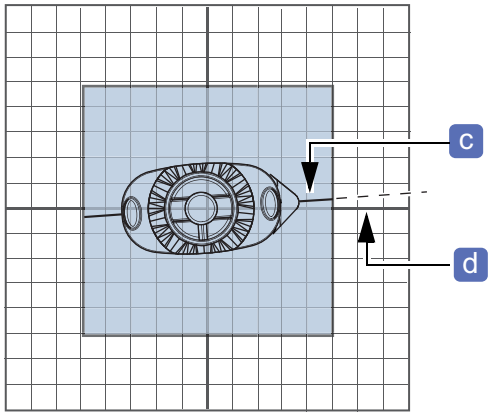
3) Load the square 45 internal data.
   "6.4.1 Loading internal data" (page 209)
4) Flat edge a flat lens.
   "4.6 Flat Edging" (page 119)



2 Place the processed lens on a piece of graph paper and align the lens edges to the lines on the paper.

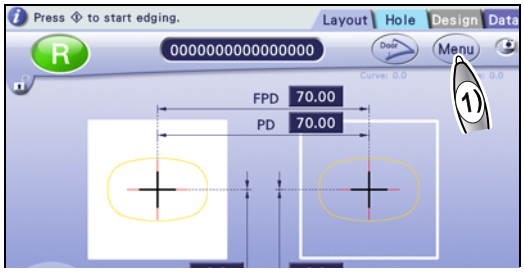
Measure the angle between the marking line c on the lens and the horizontal line d on the graph paper with a protractor.

When the angle is not within the range of ±1°, adjust the axis.



3 Adjust the axis.

1)  Menu
   → Menu screen



2) [Grinding]

➔Grinding screen

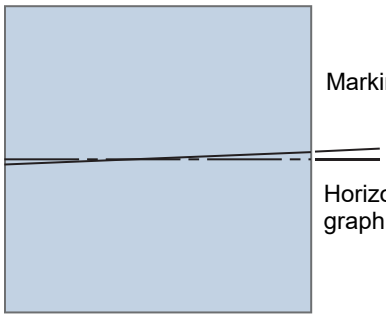
3) [Adjustment]

4) [Axis] field

➔

- Change the “Axis” parameter value by the angle difference.
- When the marking line rises up to the right as viewed from the lens front, increase the parameter value.

Ex.— When the marking line rises up to the right by 2°, increase the parameter value by 2.00.



4 [Exit]

➔Layout screen

5 Repeat Steps 1 to 4 until the axis shift is within ±0.7°.

6.4.5 Bevel position adjustment

The following is the procedure for adjusting the auto-processed bevel position toward the lens front or rear surface.

1 Check the bevel position.

1) Load the circle 45 internal data.

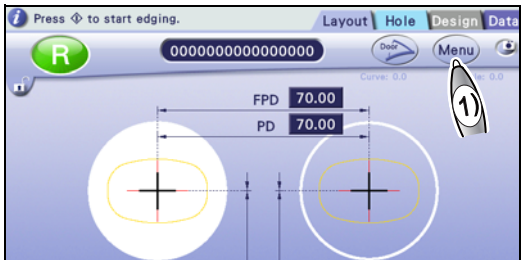
"6.4.1 Loading internal data" (page 209)

2) Bevel a flat lens in auto processing mode.

"4.3.1 Auto beveling" (page 98)

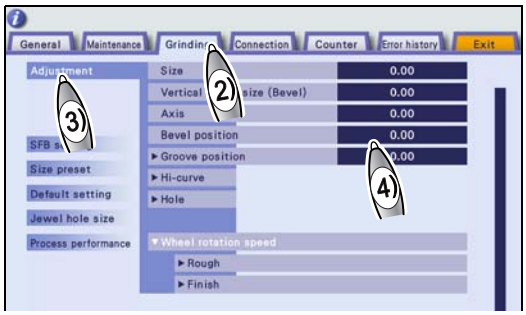
3) Check the bevel position of the processed lens.

2 Change the bevel position as necessary.



1) Menu

→Menu screen



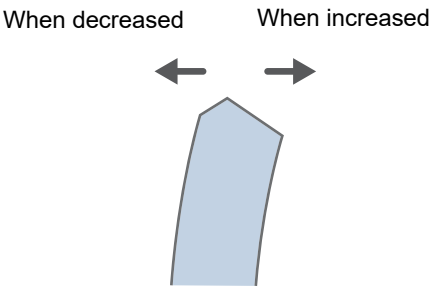
2) [Grinding]

→Grinding screen

3) [Adjustment]

4) [Bevel position] field

→



- Decreasing the value moves the bevel position toward the lens front surface.
- Increasing the value moves the bevel position toward the lens rear surface.

Ex.— To move the bevel position toward the front surface by 0.5 mm, decrease the value by 0.50.

3 [Exit]

→Layout screen

4 Repeat Steps 1 to 3 until the desired bevel position is obtained.

6.4.6 Groove position adjustment

The following is the procedure for adjusting the auto-processed groove position toward the lens front or rear surface.

1 Check the groove position.

1) Load the circle 45 internal data.

"6.4.1 Loading internal data" (page 209)

2) Groove a flat lens in auto processing mode.

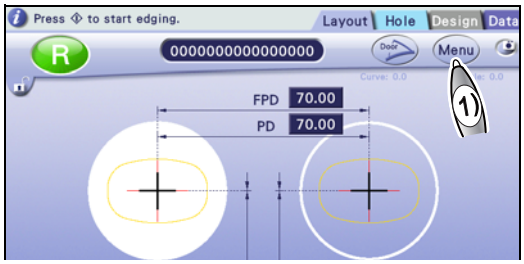
"4.7.1 Auto grooving" (page 120)

3) Check the groove position of the processed lens.

2 Change the groove position as necessary.

1) Menu

→Menu screen

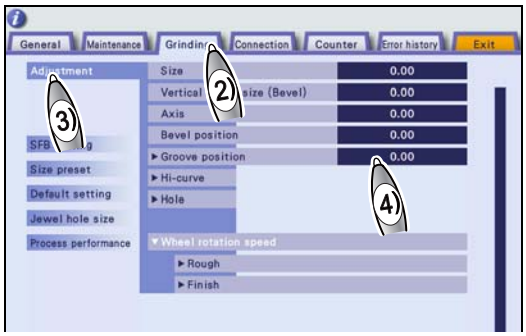


2) [Grinding]

→Grinding screen

3) [Adjustment]

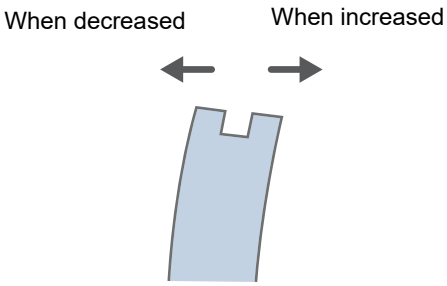
4) [Groove position] field



→

- Decreasing the value moves the groove position toward the lens front surface.
- Increasing the value moves the groove position toward the lens rear surface.

Ex.— To move the groove position toward the front surface by 0.5 mm, decrease the value by 0.50.



3 [Exit]

→Layout screen

4 Repeat Steps 1 to 3 until the desired groove position is obtained.

6.4.7 Groove depth adjustment

The following is the procedure for adjusting the groove depth for grooving.

1 Check the groove position.

1) Load the circle 45 internal data.

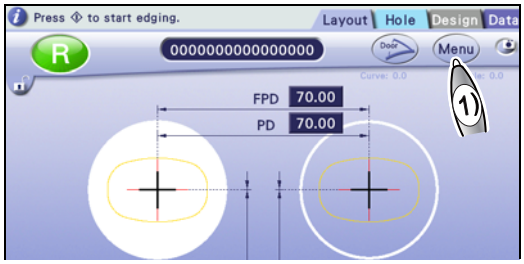
"6.4.1 Loading internal data" (page 209)

2) Groove a flat lens with the depth set to 0.0 mm in guide processing mode.

"4.7.2 Guide grooving" (page 121)

3) Confirm that a groove trace is slightly made on the edge (the groove depth is 0.10 mm or less).

2 If necessary, adjust the groove depth until it is 0.10 mm or less.



1) Menu

→Menu screen

2) [Grinding]

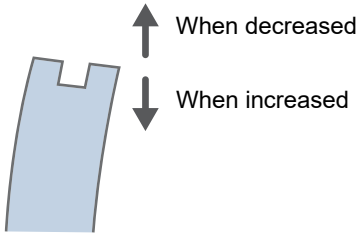
→Grinding screen

3) [Adjustment]

4) [►Groove position]

5) [Depth] field

→



- Decreasing the value makes the groove shallower.
- Increasing the value makes the groove deeper.

Ex.— To make the groove 0.5 mm deeper, increase the value by 0.50.

3 [Exit]

→Layout screen

4 Repeat Steps 1 to 3 until the groove depth becomes proper.

6.4.8 Hole depth check and adjustment

The following is the procedure for adjusting the hole depth for drilling.

- Hole depth check

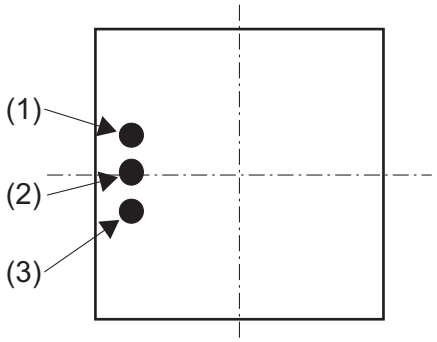
1 Load the internal data for drilling confirmation.

"6.4.1 Loading internal data" (page 209)

2 Drill a flat lens with the ø0.8 drill bit.

"4.9 Drilling" (page 126)

3 Check the depths of holes (1) to (3) as shown to the right.



When adjustment is performed properly	
(1)	A shallow hole is made.
(2)	A slight hole mark is made.
(3)	No hole mark is made.

- Hole depth adjustment

To adjust the hole depth, perform the hole depth calibration.

"6.3.3 Hole depth calibration" (page 208)

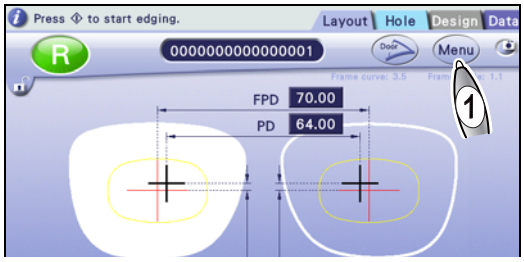
❖ The hole depth adjustment is complete by performing the calibration above.

6.4.9 Safety bevel amount setting

The following is the procedure for setting the safety bevel amount for each bevel type (Small, Medium, Large, and Special).

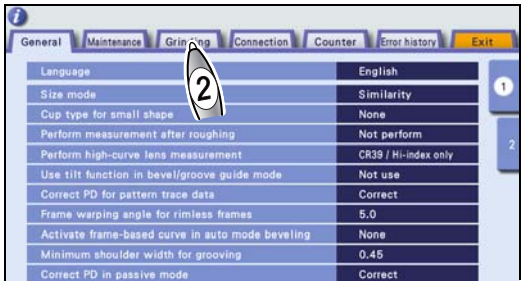
1 Menu

→Menu screen



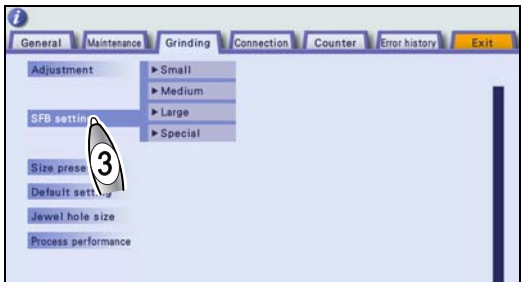
2 [Grinding]

→Grinding screen



3 [SFB setting]

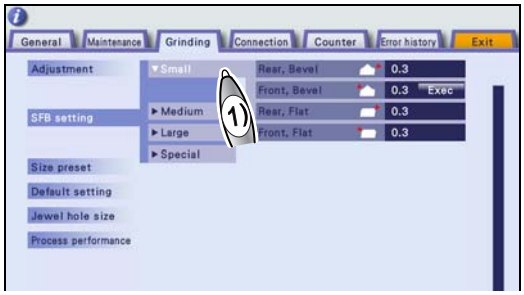
→SFB setting screen



● Setting safety bevel amount for Small

1) [►Small]

→Small parameters



2) [Rear, Bevel] field

→ (Setting range: 0.0 to 1.0 mm)

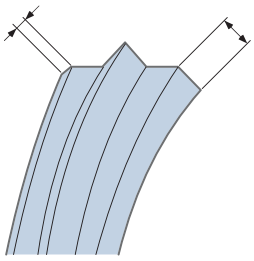
3) [Front, Bevel] field

→ (Setting range: 0.0 to 1.0 mm)

When [None] is selected, the value becomes invalid.

SFB amount for front edge

SFB amount for rear edge



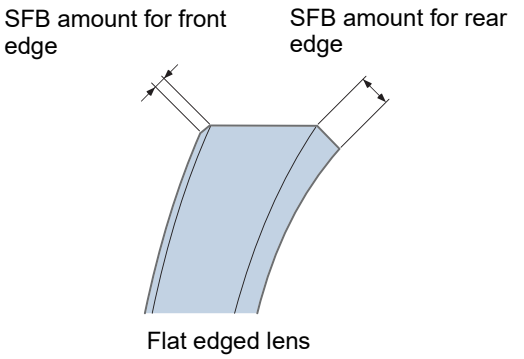
Beveled lens

4) [Rear, Flat] field

→ (Setting range: 0.0 to 1.0 mm)

5) [Front, Flat] field

→ (Setting range: 0.0 to 1.0 mm)

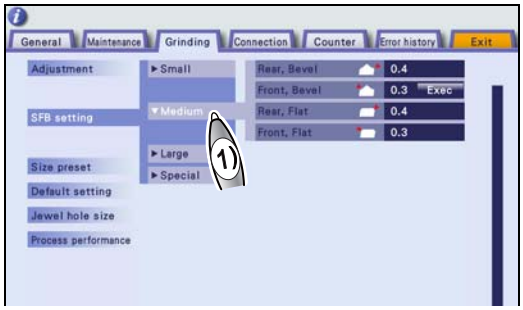


- Setting safety bevel amount for Medium

1) [▶Medium]

→Medium parameters

2) Perform Steps 2) to 5) in *"● Setting safety bevel amount for Small" (page 218)* to set the safety bevel amount.

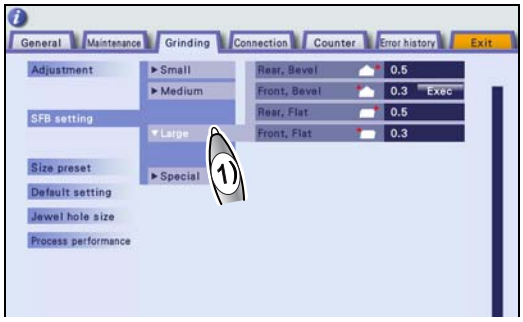


- Setting safety bevel amount for Large

1) [▶Large]

→Large parameters

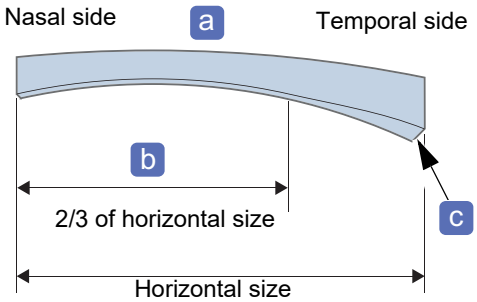
2) Perform Steps 2) to 5) in *"● Setting safety bevel amount for Small" (page 218)* to set the safety bevel amount.



- Setting safety bevel amount for Special

For Special, the rear edge on the temporal side is widely safety beveled.

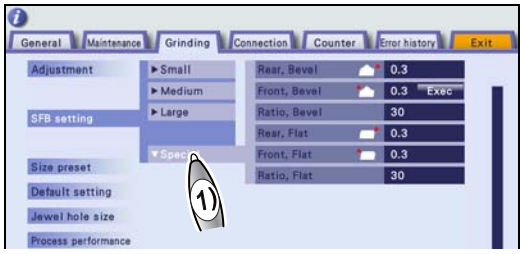
Position	Safety bevel amount
Front edge a	[Front, Bevel]
	[Front, Flat]
2/3 of horizontal size from nasal side b	[Rear, Bevel]
	[Rear, Flat]
Rear edge on temporal side c	Rear edge thickness × [Ratio, Bevel [%]]
	Edge thickness × [Ratio, Flat [%]]



Since the safety bevel amount is limited according to the thickness of the wheel, the lens may not be safety beveled with the specified ratio depending on the lens thickness.

1) [▶Special]

→Special parameters



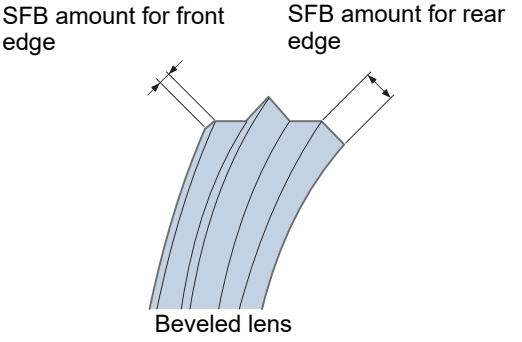
2) [Rear, Bevel] field

→ (Setting range: 0.0 to 1.0 mm)

3) [Front, Bevel] field

→ (Setting range: 0.0 to 1.0 mm)

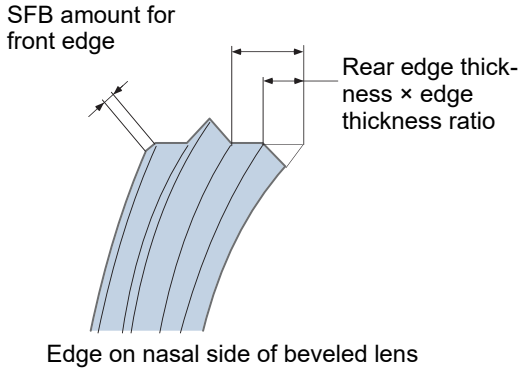
When [None] is selected, the value becomes invalid.



4) [Ratio, Bevel [%]] field

→

For the rear edge on the temporal side of a beveled lens, it is safety beveled by the amount of “rear edge thickness × edge thickness ratio”.

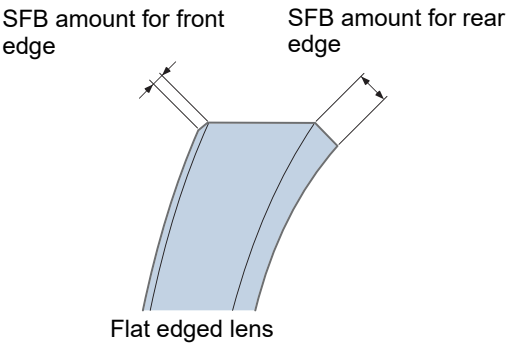


5) [Rear, Flat] field

→ (Setting range: 0.0 to 1.0 mm)

6) [Front, Flat] field

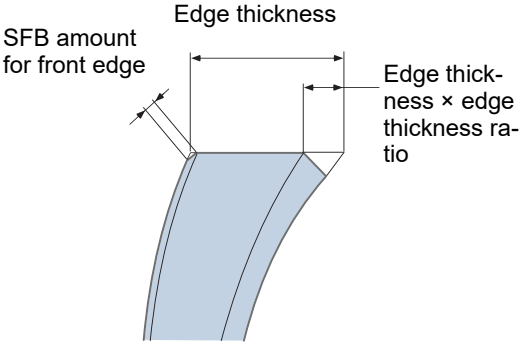
→ (Setting range: 0.0 to 1.0 mm)



7) [Ratio, Flat [%]] field

→

For the rear edge on the temporal side of a flat edged lens, it is safety beveled by the amount of “edge thickness × edge thickness ratio”.



4 [Exit]

→Layout screen

7 MAINTENANCE

Contents described in this chapter

7.1 Troubleshooting

◆ Checking the symptoms

If the instrument does not function properly, check the following table before contacting Nidek or your authorized distributor.

Symptom	Remedy
The instrument does not start even though the power switch is turned on.	• Check whether the power cord is properly connected. • Check whether proper voltage is applied to the power outlet by connecting another instrument.
Processing does not start even though  is pressed.	• Check whether the layout data has been entered. • The instrument may be attempting to process the same lens again. Press the R/L button to switch the side of the lens to be processed.
A part of the displayed shape on the layout screen blinks after lens shape measurement.	The lens diameter is insufficient. The part insufficient in size blinks. Press  to release the lens to replace it with one with a larger diameter or change the layout data.
A message requesting wheel dressing is displayed.	Dress the wheel. "7.5 Wheel Dressing" (page 230)
A maintenance message is displayed and the instrument has stopped.	Perform the remedy according to the maintenance message. If the maintenance message is displayed again, contact Nidek or your authorized distributor.
An error code is displayed and the instrument has stopped.	An abnormality has occurred in the instrument. Turn off and on the instrument. If the error code is displayed again, turn off the instrument, then contact Nidek or your authorized distributor.

Symptom	Remedy
The processed lens size differ between the right-eye and left-eye lenses.	The shape data may incorrect. Check the shape data.
After step beveling, a part of the shape display on the layout screen blinks.	The blinking part is not step beveled. Take out the lens to check that part, then step bevel there using a hand edger or such.

❖ If the symptom is not corrected by the above actions, contact Nidek or your authorized distributor.

7.2 Periodical Inspection

It is recommended that a periodical inspection be conducted every two years so that the instrument can be used in a proper condition for a long period of time. To ask for a periodical inspection, contact Nidek or your authorized distributor.

⚠ CAUTION

- The parts that the customer can replace are only the drill bit, stocking filter, and cooling fan filter. Be sure to follow the local ordinances when disposing of the parts after replacement.
- The periodical inspection of the instrument and replacement of the parts in the table below are performed by personnel authorized by Nidek. As malfunction or injury may occur, do not replace the parts, repair, or disassemble the instrument.

Periodic maintenance item	Maintenance cycle	Maintenance/Replacement details
Wheels	2 years or 5,000 lenses	Check for deterioration in the processing performance. Replace the wheel if its surface is worn causing problems in practical use.
Spindle unit	2 years	Check for abnormal sounds or vibration. Replace it if any problem is found.
Processing chamber		Check the processing chamber for cracks, breaks, deterioration, or water leakage. Replace it if any problem is found.
Safety beveling unit		• Replace the wheel rotation belt. • Apply grease to the waterproof seal. • Check the safety beveling wheel for deterioration in the processing performance. Replace the wheel if its surface is worn causing problems in practical use.
Drilling and grooving unit		• Apply grease to the waterproof seal. Replace it if it is deteriorated. • Check the drill bit and grooving wheel for deterioration in the processing performance. Replace it if deterioration is found. • Check the belt for deterioration. Replace it if it is deteriorated.
Feedwater and drain hoses (including feedwater hoses inside the edger)		Check the hoses for cracks, deterioration, or clogging by sight and touch. Replace them if any problem is found.
Lens clamp		Check the rubber part for wear or chipping. Replace it if any problem is found.
Feeler		Check for deterioration in the processing performance for safety bevel width or such. Replace it if any problem is found.
Cooling fan filter		Remove the cooling fan filter and vacuum up the dust to check for deterioration or problem. Replace it if any problem is found.
Inverter	3 years	Check for any problem in the performance. Replace it if any problem is found.
Switching power supply	7 years	

Wheels need to be replaced every two years or after 5,000 lenses are processed. However, it is a guide. Earlier replacement may be needed under processing conditions such as successive processing of hard lenses and processing of a large number of high-power minus lenses. In addition, if the wheel is damaged by operation mistakes such as processing glass lenses with the roughing wheel for plastic lenses, its lifetime may be reduced substantially.

7.3 Cleaning

Contents described in this section

⚠ CAUTION

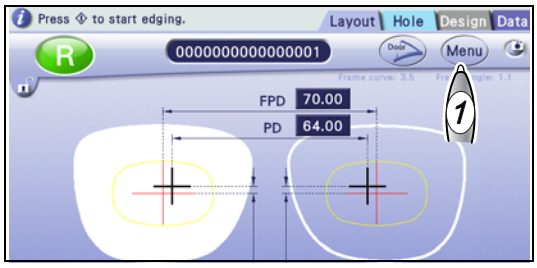
- Clean the instrument regularly to keep it free of dust or dirt.
- Do not use an overly wet sponge or cloth.
- Do not operate the display or buttons with wet hands.
  Water seepage into the instrument may result in electric shock, malfunction, or fire.
- Do not use an organic solvent such as paint thinner.
  The surface of the instrument may be damaged.
- Be sure to clean the processing chamber after the last use of the day.
  If the chamber is left without cleaning for several days after processing, processing waste becomes settled and hard to remove.

7.3.1 Cleaning the processing chamber

Run the cleaning water and remove processing waste settled in the processing chamber with a brush.

1 Menu

→Menu screen



2 [Maintenance]

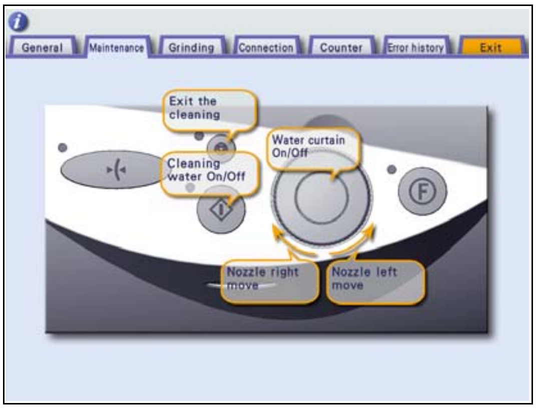
→Maintenance screen

3 [Cleaning]

→Cleaning mode

When cleaning mode is enabled, the screen as shown to the right is displayed.

Referring to the operation guides for the buttons on the screen, run, stop, or control the water flow as necessary.



4 When cleaning is complete, press (STOP) to stop the cleaning water.

5 Turn off the power switch.

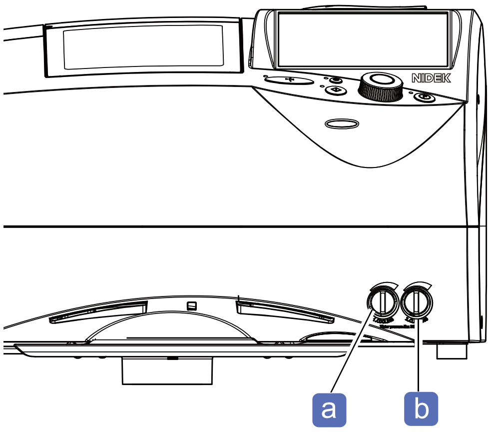
7.3.2 Controlling the flow volumes of cooling water and cleaning water

◆ Cooling water flow volume control

1 Perform Steps 1 to 3 in *"7.3.1 Cleaning the processing chamber" (page 225)*.

2 The cooling water starts running.

3 Turn the cooling water control a to the right or left to adjust the water flow volume.



4 The cooling water stops running.

◆ Cleaning water flow volume control

1 Perform Steps 1 to 3 in *"7.3.1 Cleaning the processing chamber" (page 225)*.

2 (START) The cleaning water starts running.

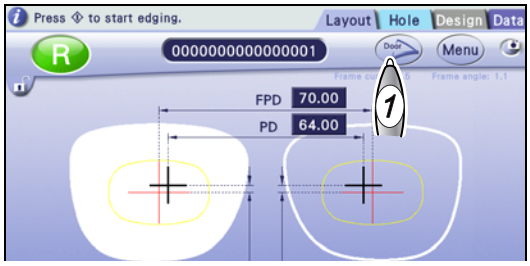
3 Turn the cleaning water control b to the right or left to adjust the water flow volume.

4 (START) The cleaning water stops running.

7.3.3 Cleaning the processing chamber door

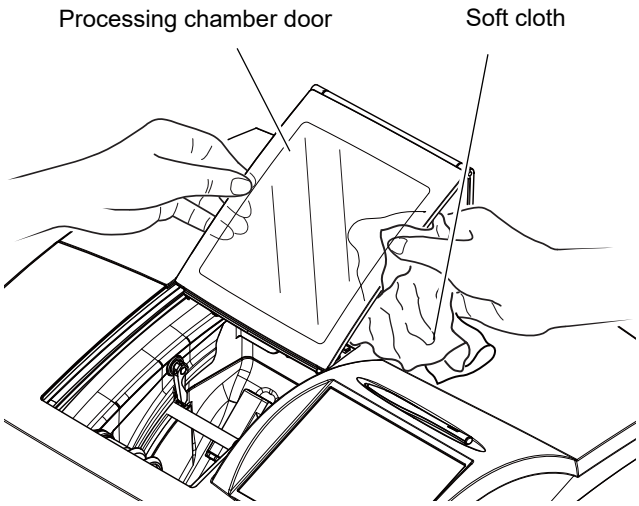
1 

The processing chamber door opens.



2 Turn off the power switch.

3 Soak a cloth in a neutral detergent diluted with water, then wring it well. While holding the processing chamber door by one hand so that it does not come off, wipe off any dirt with the cloth.



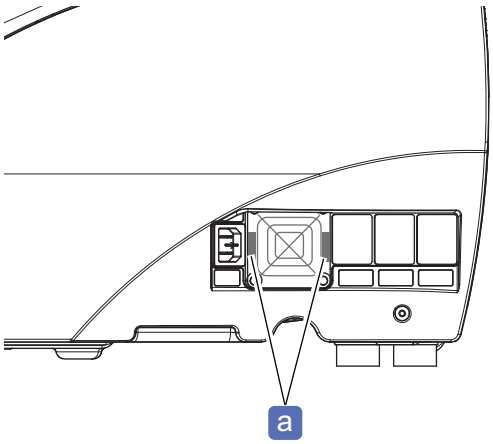
7.3.4 Cleaning the cooling fan filter

Remove the cooling fan filter on the right side of the instrument, and vacuum up any dust periodically. If the filter becomes clogged, the temperature inside the instrument will rise, resulting in malfunction.

1 Turn off the power switch.

2 Remove the filter holder and the filter at the back from the cooling fan on the right side of the instrument.

Pull the hooks a on the filter holder forward.



3 Set a vacuum cleaner to a low setting, and vacuum the filter to remove any dust.

If the filter is torn, replace it with a new one.

4 Reattach the filter and filter holder.

7.4 Drill Bit Replacement

When the drill bit is broken, replace it with a new one.

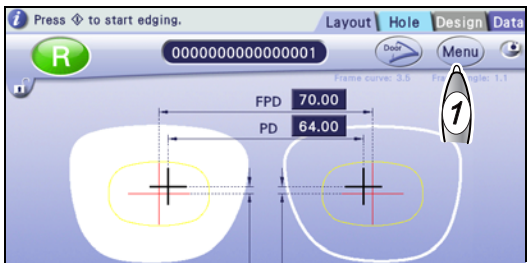
⚠ CAUTION

When replacing the drill bit, observe the following. Failure to do so may result in injury or burns.

- Use the drill bit specified by Nidek.
- Before replacing the drill bit, enter drill replacement mode, turn off the instrument, and disconnect the power plug from the power outlet. If replacement is performed with the power turned on, touching the operation buttons or display inadvertently may move the sub spindle unit or chuck shaft, resulting in injury or malfunction.
- Immediately after drilling, the drill bit is extremely hot. Wait for at least 1 minute, and wear gloves before replacing the drill bit.

1 Menu

→Menu screen



2 [Maintenance]

→Maintenance screen

3 [Drill]

→Confirmation message

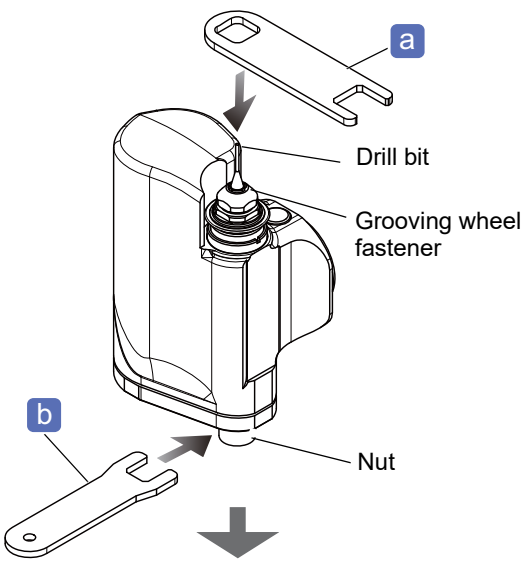
Remove the lens according to the message.

4 [Yes]

When the drilling and grooving unit moves to the replacement position, a message is displayed, and the unit stops.

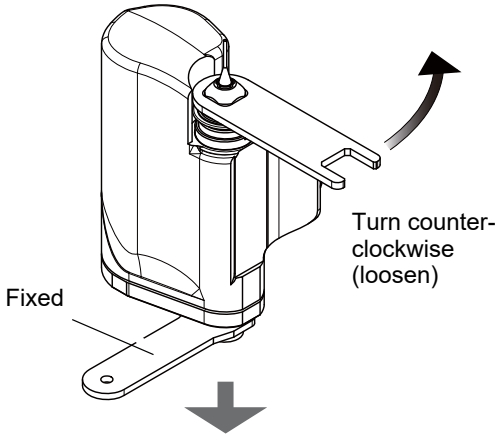
5 Turn off the power switch.

6 Attach wrench A (a) to the grooving wheel fastener and wrench B (b) to the nut.



7 Hold wrench B by one hand.

Turn wrench A counterclockwise to loosen the grooving wheel fastener so that the drill bit can be pulled out by hand.



8 Remove the drill bit, then insert a new one completely.

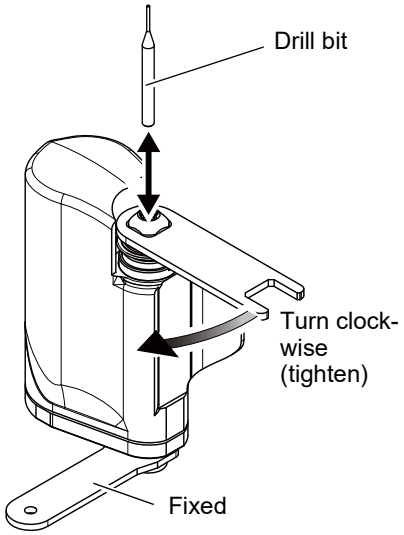
9 Hold wrench B by one hand.

Turn wrench A clockwise to tighten the grooving wheel fastener securely.

10 Remove the wrenches, and turn on the instrument.

11 Adjust the hole depth.

"6.4.8 Hole depth check and adjustment" (page 217)



12 [Exit]

→Layout screen

A message confirming whether to resume processing may be displayed. If processing is desired to be resumed because the drill bit has been broken during processing, press [Yes]. Otherwise, press [No].

7.5 Wheel Dressing

Contents described in this section

If wheels are clogged, the processing time becomes longer or the precision in size or polishing is degraded. Dress the wheels periodically.

⚠ CAUTION

- In dressing mode, the wheels rotate with the processing chamber door open. Work with special care during dressing so that hands do not come into contact with the wheels.
- When dressing the wheel, hold the dressing stick with both hands with a minimum of 2 to 3 cm protruding.
  Failure to do so may cause injury by hand contact with the wheel.
- When the dressing stick is worn to the length of 4 cm, replace it with a new one.
  It is difficult to hold the shortened dressing stick, so finger injury or wheel damage may result.
- The vapor and particles produced during dressing may be harmful. If necessary, wear a protective mask and glasses.
- Protect the display from splashing water. Do not operate the display with wet hands.
- Do not dress the roughing wheel for plastic lenses and polishing wheel.
  Doing so may damage the wheel impairing normal lens processing.
- Be sure to select the dressing stick suitable for the wheel type. Failure to do so may damage the wheel impairing normal lens processing.
- Apply the end face of the dressing stick to the wheel. If its corner or edge is applied, the wheel may be damaged.
- Lightly apply the dressing stick to the wheel. Otherwise, the wheel may be damaged.
- Do not repeatedly start and stop wheel rotation.
- When processing cannot be finished within the specified time due to clogged glass roughing wheel or finishing wheel, processing is stopped, and the error message "Roughing not completed" or "Finishing not completed" is displayed. In this case, dress the wheel.

Dressing tools suitable for each wheel type

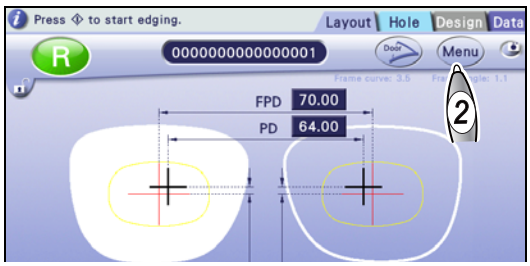
Roughing wheel for glass lenses (PLB-2R8S only)	Dressing stick for glass roughing wheel (orange) WA80K
Polishing wheel	Compound kit
Safety bevel polishing wheel	
Finishing wheel	Dressing stick for finishing wheel (white) WA320K
Safety bevel finishing wheel	
High base curve finishing wheel	
Grooving wheel	
Step beveling wheel	

7.5.1 Dressing the wheels

1 Soak the dressing stick in water for about 5 minutes.

2 Menu

→Menu screen



3 [Maintenance]

→Maintenance screen

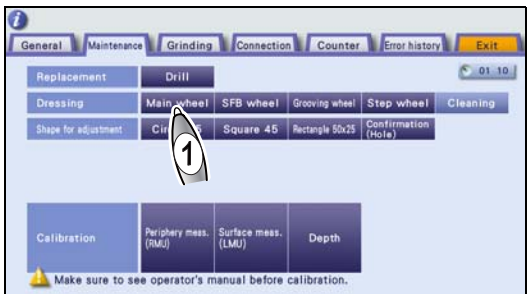
◆ Roughing wheel for glass lenses, finishing wheel, high base curve finishing wheel

The roughing wheel for glass lenses is included in type PLB-2R8S only.

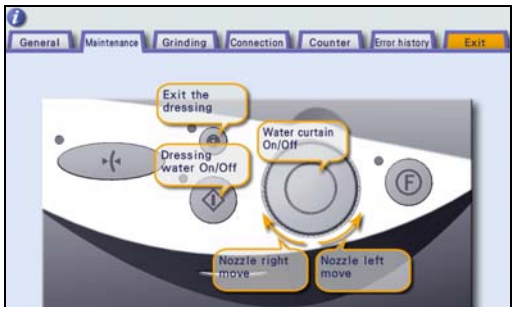
1 [Main wheel]

→Screen showing operation guides for buttons

The wheels rotate at a low speed.



Referring to the operation guides for the buttons on the screen, finish dressing, or control the water flow.



2 Dress the wheel.

1) START

Water comes out of the cooling water nozzle.

2) Wet the dressing stick well with running water.

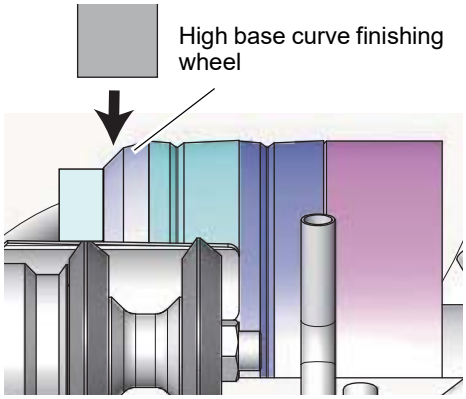
3) If necessary, turn ◎ to move the cooling water nozzle so that water runs on the desired wheel.

4)

Water stops running.

5) Lightly apply the dressing stick to the wheel for about 5 seconds.

When dressing the high base curve finishing wheel for the first time, lightly apply the dressing stick from above while running water on the wheel until the dressing stick is ground into the shape of the high base curve finishing wheel.



6) Release the dressing stick from the wheel.

7)

Run water to wash off the wheel surface.

3 Repeat Steps 4) to 7) two or three times.

4

The water and wheels come to a stop.

5 [Exit]

➔Layout screen

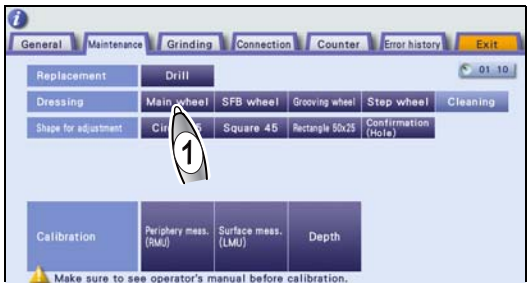
◆ Polishing wheel

⚠ CAUTION

- Be sure to dress the polishing wheel and safety beveling wheel with the compound kit specified by Nidek.
- The vapor and particles produced during dressing are harmful. Do not inhale them.
  Wear a protective mask and glasses.
- Persons with sensitive skin should wear protective gloves to prevent irritation.
- If the compound enters the eye, immediately rinse it under running water, and consult a doctor.
- Since the compound is toxic, do not ingest it.
  If it is ingested inadvertently, immediately consult a doctor.

1 [Main wheel]

The screen showing the operation guides for buttons is displayed, and the wheels rotates at a low speed.



2 Prepare the compound kit.

1)

Water comes out of the cooling water nozzle.

2) If necessary, turn  to move the cooling water nozzle so that water runs on the desired wheel.

3) 

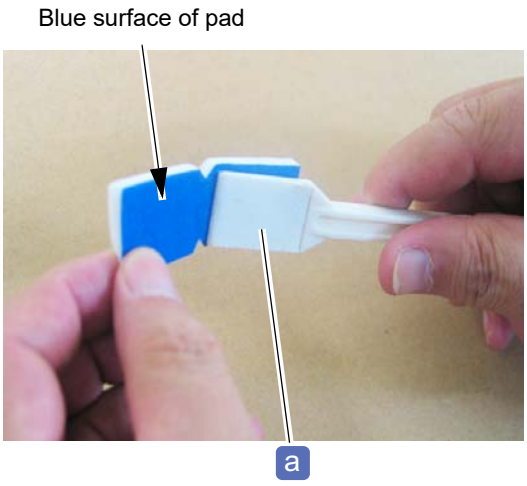
Water stops running.

If water is left running, the compound is soon washed away and dressing cannot be properly performed.

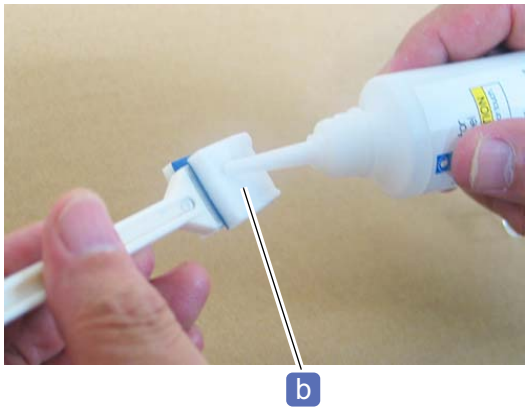
Be sure to stop the water.

4) Attach the pad to the dressing stick a .

The blue surface of the pad is Velcro® tab. Attach the blue surface of the pad to the rough surface of the dressing stick.



5) Thoroughly and evenly apply the compound b to one side of the pad.



3 Dress the wheel.

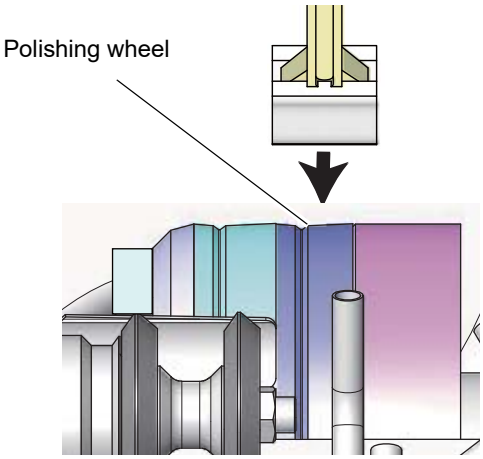
1) Holding the dressing stick by its handle, lightly apply the pad surface covered with compound to the rotating polishing wheel.

The pad is gradually worn away. Dress the wheel until the white surface of the pad wears away. Take care not to wear the dressing stick.

2) Apply the compound to the other side of the pad, and dress the polishing wheel again.

3) 

Run the water to wash off the wheel surface.



4

The water and wheels come to a stop.

5 After the wheels and water stop, 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 may remain on the wheel surface impairing polishing.

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

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

The compound is left on the parts that have no shine. Press START again to run the water and wash the wheel.

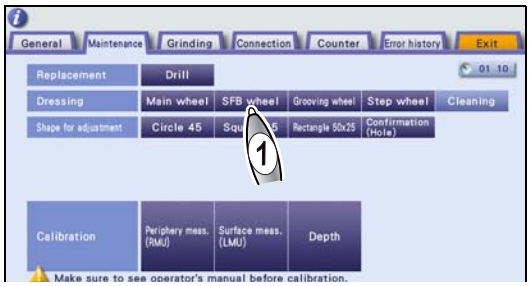
7 [Exit]

→Layout screen

◆ Safety bevel polishing wheel

1 [SFB wheel]

The screen showing the operation guides for buttons is displayed. The safety beveling wheel unit is lowered and rotates at a low speed.



2 Prepare the compound kit.

Perform Step 2 in *"♦ Polishing wheel" (page 232)*.

3 Dress the wheel.

1) Holding the dressing stick by its handle, lightly apply the pad surface covered with compound to the rotating safety bevel polishing wheel.

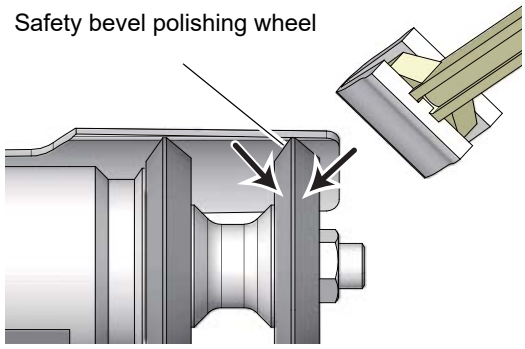
   The pad is gradually worn away. Dress the wheel until the white surface of the pad wears away. Take care not to wear the dressing stick.

2) Apply the compound to the other side of the pad, and dress the safety beveling wheel again.

3)

Run the water to wash off the wheel surface.

Safety bevel polishing wheel



4  

The water and wheels come to a stop.

The safety beveling wheel unit returns to its original position and the Maintenance screen is displayed.

5 After the wheels and water stop, remove moisture from the surface of the safety bevel polishing wheel by patting with a soft, dry cloth.

Do not scrub the wheel roughly with the cloth. Cloth fibers may remain on the wheel surface impairing polishing.

6 When the surface of the safety bevel polishing wheel dries, confirm that the compound is completely washed away.

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

The compound is left on the parts that have no shine. Press  again to run the water and wash away the compound.

7  [Exit]

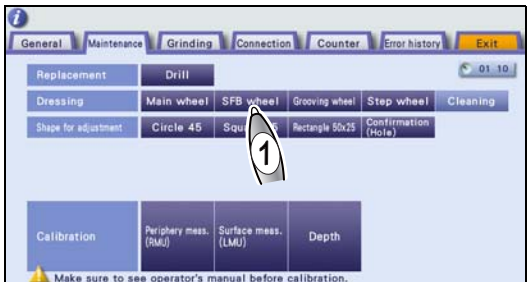
→Layout screen

◆ Safety bevel finishing wheel

When safety beveling of glass lenses, faceting, and special safety beveling are performed frequently, dress the safety bevel finishing wheel as well.

1 [SFB wheel]

The screen showing the operation guides for buttons is displayed. The safety beveling wheel unit is lowered and rotates at a low speed.



2 Dress the wheel.

1) 

Water comes out of the cooling water nozzle.

2) Wet the dressing stick for finishing wheel well with running water.

3) If necessary, turn  to move the cooling water nozzle so that water runs on the desired wheel.

4) 

Water stops running.

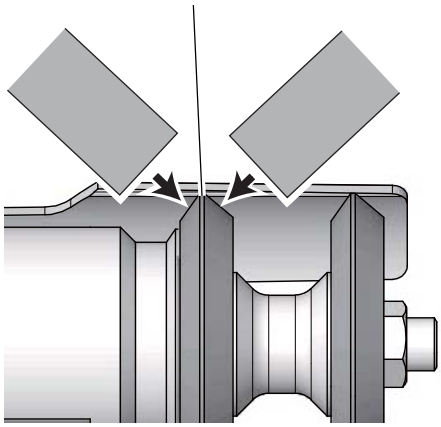
5) Lightly apply the dressing stick to the wheel.

6) Release the dressing stick from the wheel.

7) 

Run water to wash off the wheel surface.

Safety bevel finishing wheel



3 

The water and wheels come to a stop.

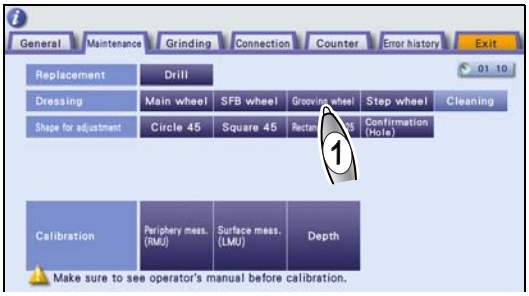
4 [Exit]

➔Layout screen

◆ Grooving wheel

1 [Grooving wheel]

The screen showing the operation guides for buttons is displayed. The drilling and grooving unit comes out and rotates at a low speed.



2 Dress the wheel.

1)
Water comes out of the cooling water nozzle.

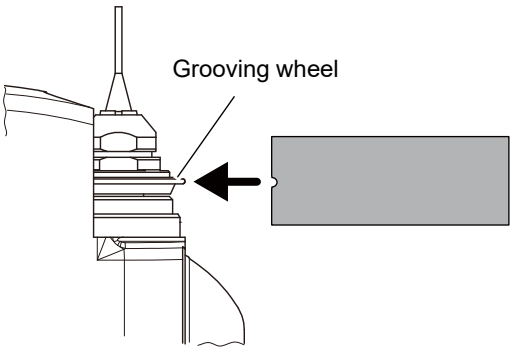
2) Wet the dressing stick for finishing wheel well with running water.

3) If necessary, turn to move the cooling water nozzle so that water runs on the desired wheel.

4)
Water stops running.

5) Lightly apply the dressing stick to the grooving wheel.

6) Release the dressing stick from the grooving wheel.



7)
Run water to wash off the wheel surface.

3
The water and wheels come to a stop.

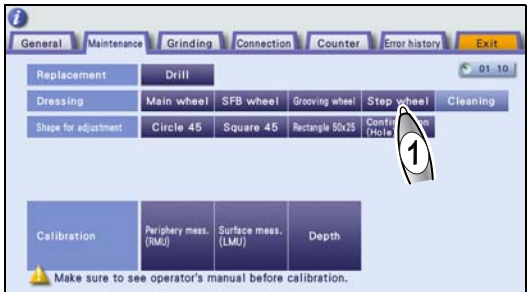
4 [Exit]

→Layout screen

◆ Step beveling wheel

1 [Step wheel]

The screen showing the operation guides for buttons is displayed. The drilling and grooving unit comes out and rotates at a low speed.



2 Dress the wheel.

1)
Water comes out of the cooling water nozzle.

2) Wet the dressing stick for finishing wheel well with running water.

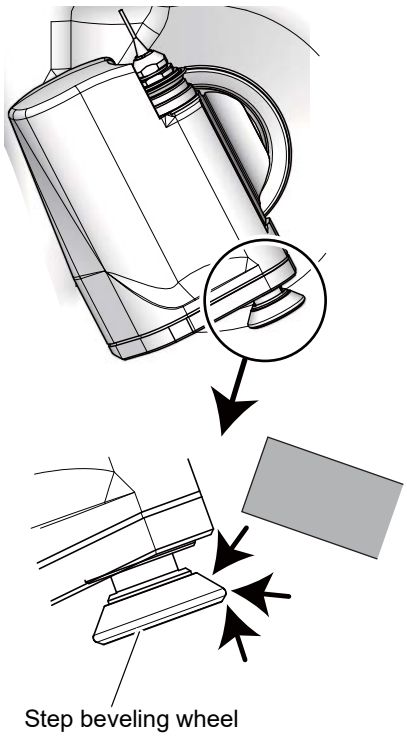
3) Turn to move the cooling water nozzle so that water runs on the desired wheel.

4)
Water stops running.

5) Lightly apply the dressing stick to the three surfaces of the step beveling wheel.

6) Release the dressing stick from the step beveling wheel.

7)
Run water to wash off the wheel surface.



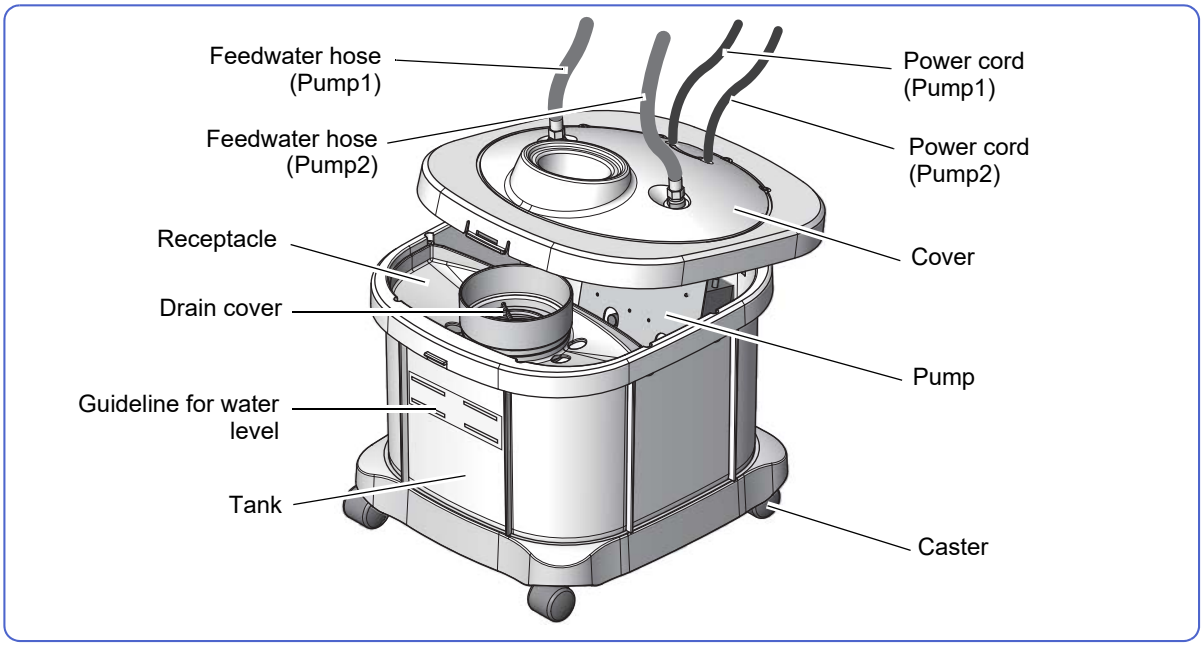
3
The water and wheels come to a stop.

4 [Exit]

➔Layout screen

7.6 Pump Tank Water and Filter Replacement

Replace the water or stocking filter in the pump tank (option) when a message prompting the user to clean the tank or replace the filter is displayed. It is recommended to replace them after 100 lenses are processed.



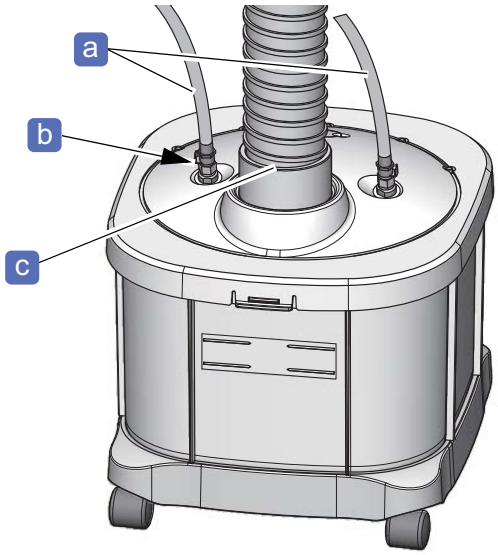
1 Open the table, and pull out the pump tank.

2 Disconnect the power cords for Pump1 and Pump2 from the extension cords connected to the ME-1500.

"♦ *Connecting power cords of pump tank" (page 244)*

3 Remove the feedwater hoses for Pump1 and Pump2 while pressing the gray lock b on each hose a.

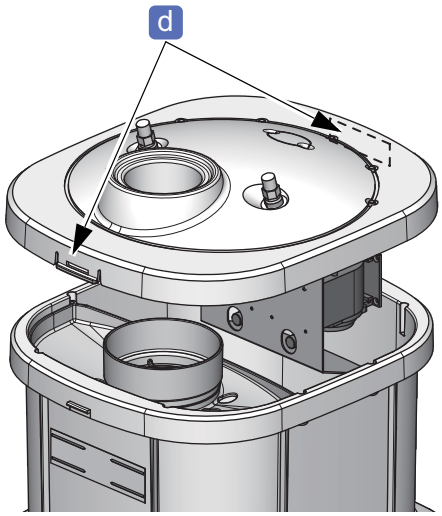
4 Disconnect the drain pipe (with cuff) c from the pump tank.



5 Move the pump tank to the place where it will be cleaned.

When the cover is removed, processing waste and water may fall off and stain the floor.

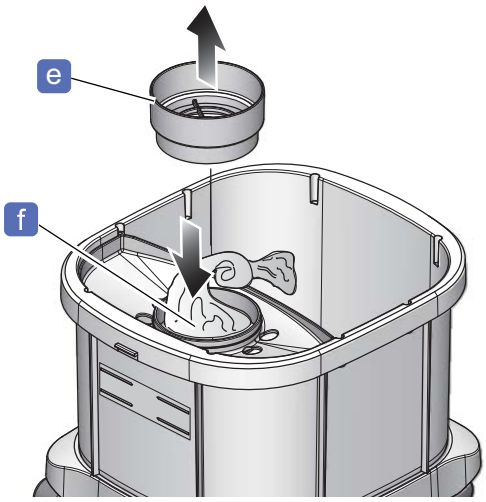
6 While pulling the hooks d on the front and rear of the cover, remove the cover.



⚠ CAUTION

The heavy pump is attached to the cover. Be careful not to drop the cover or get caught fingers when closing it.

7 Remove the drain cover e, and tie the opening of the stocking filter f so that the processing waste does not escape from the filter. After that, drop the stocking filter into the tank.



8 Dispose of the processing waste and stocking filter.

⚠ CAUTION

- When disposing of lens processing waste and stocking filter, follow the laws and local ordinances of your country.

  Inappropriate disposal may contaminate the environment.

9 Dispose of processing wastewater in the tank.

⚠ CAUTION

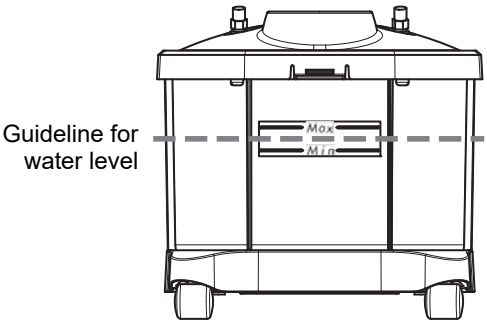
- When disposing of processing wastewater in the tank, follow the laws and local ordinances of your country.

  Inappropriate disposal may contaminate the environment.

10 Wash away any bubbles or soil on the tank, cover, receptacle, and drain cover.

11 Fill the tank with water up to the guideline for water level.

- Do not put a plastic sheet or such in the tank. The feed-water outlet of the pump may be blocked causing mal-function.
- Do not allow the water level to rise over the maximum line, which may cause malfunction or water leakage.



Note

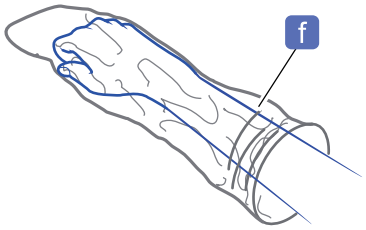
For antifoaming and deodorizing, it is recommended to put “Antifoaming deodorant +” in the water.

For the maximum tank water level, put three cups of “Antifoaming deodorant +” in the water.

12 Place the arm into the new stocking filter f, and lightly stretch it to the back.

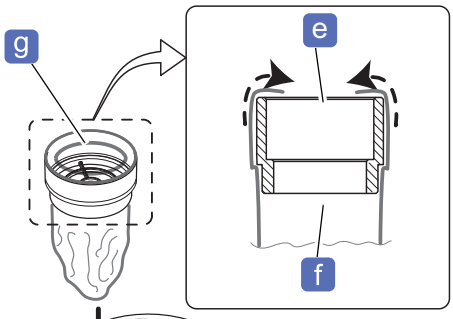
If the filter is not stretched, it may easily get clogged with processing waste.

The stocking filter is not reusable. Use a new one.



13 Attach the stocking filter f to the drain cover e.

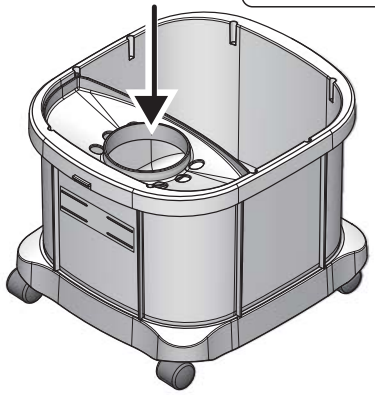
Fold the rubber part g of the stocking filter opening over the top of the drain cover toward its center.



14 Thread the stocking filter through the large hole on the receptacle, and reattach the drain cover.

15 Attach the cover to the pump tank.

Push down the cover until the hooks on the front and rear snap into place.

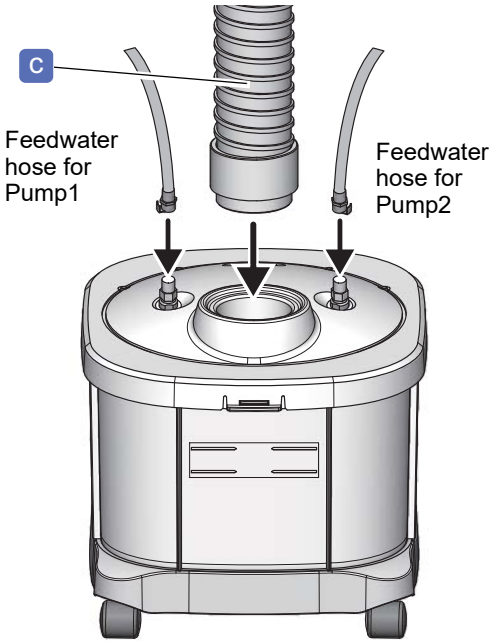


16 Place the pump tank under the table and connect the drain pipe (with cuff) C .

17 Connect the two feedwater hoses to the tank.

1) Connect the feedwater hose labeled with 1 to the connector with the indication of Pump1 until a click is heard.

2) Connect the feedwater hose labeled with 2 to the connector with the indication of Pump2 until a click is heard.



18 Connect the power cords for Pump1 and Pump2.

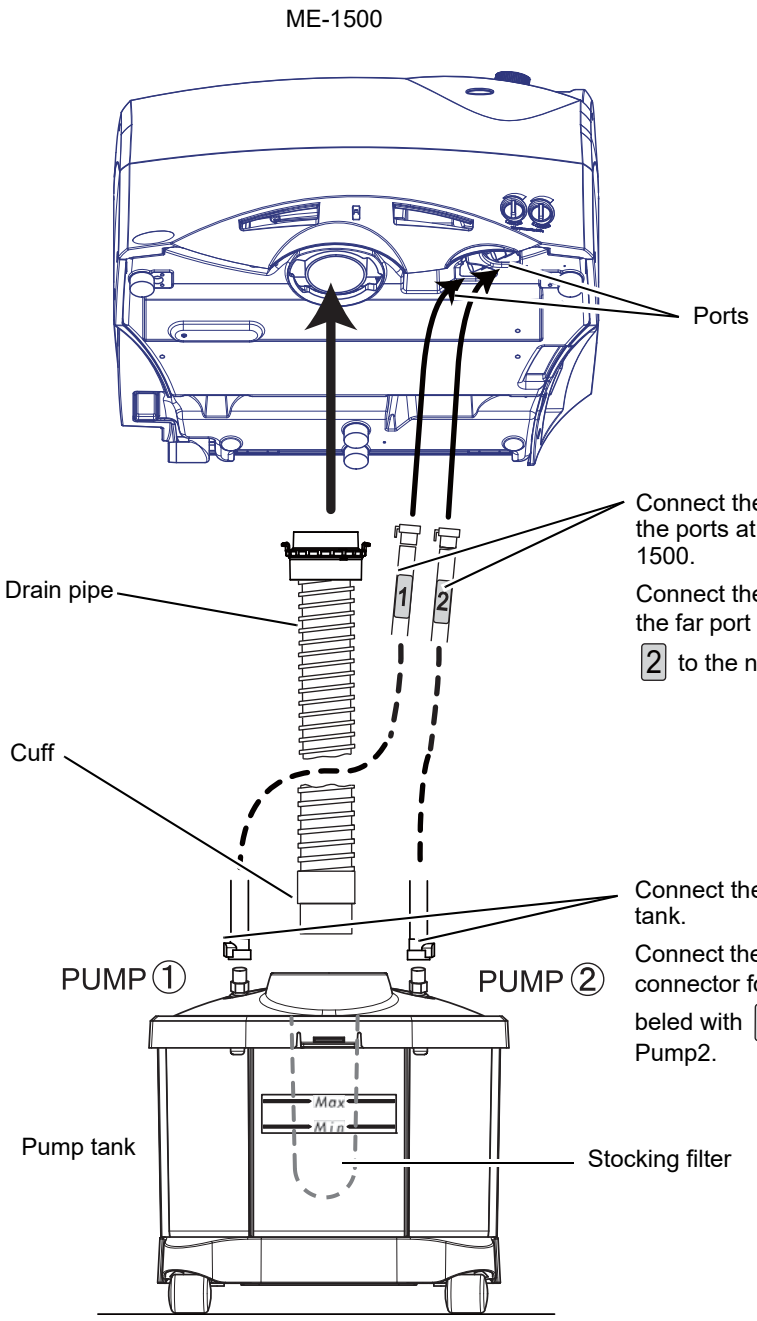
1) Connect the power cord labeled with 1 to the extension cord connected to the outlet for Pump1.

2) Connect the power cord labeled with 2 to the extension cord connected to the outlet for Pump2.

"♦ *Connecting power cords of pump tank" (page 244)*

◆ Connecting hoses and pipe of pump tank

The following is an example of connecting the hoses and pipe of the pump tank to the ME-1500.



Connect the two feedwater hoses to the ports at the bottom of the ME-1500.

Connect the hose labeled with 1 to the far port and the hose labeled with 2 to the near port.

Connect the two feedwater hoses to the tank.

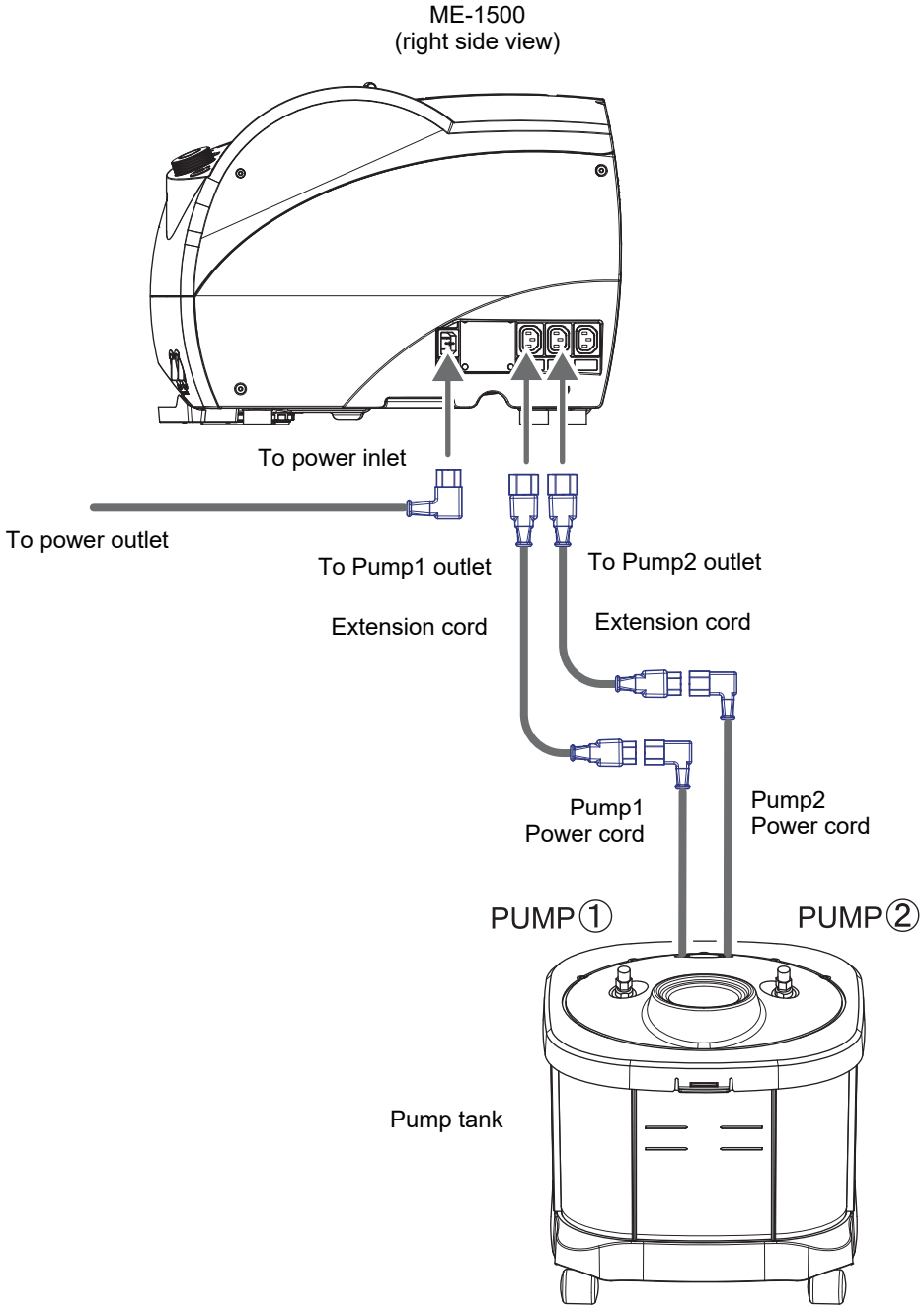
Connect the hose labeled with 1 to the connector for Pump1 and the hose labeled with 2 to the connector for Pump2.

◆ Connecting power cords of pump tank

The following is an example of connecting the power cords of the pump tank to the ME-1500.

⚠ CAUTION

- Before connecting the power cords, be sure to turn off the power switches of all instruments.
- When connecting the power cords, make sure that your hands are dry. Also, if the power cords or the instrument is wet, wipe moisture off before work.

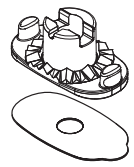
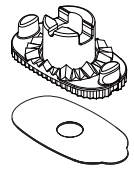
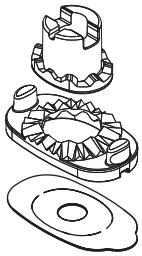


7.7 List of Consumables and Replacement Parts

Part name	Remarks
Compound kit	
Dressing stick for finishing wheel (white)	WA320K
Dressing stick for glass roughing wheel (orange)	WA80K
Drill bit	ø0.8 L6.5 (10 units per set)
Drill bit (option)	ø1.2 L6.5 (10 units per set)
Drill bit (option)	ø0.6 L7.1 (10 units per set)
Drill bit (option)	ø1.0 L6.5 (10 units per set)
Stocking filter	
Cooling fan filter	

◆ Lens cup

For the ME-1500, use the lens cups and the double-coated adhesive pads listed in the table below.

Part name		Remarks
	Pliable cup (white)	For standard lenses
	Pliable cup (red)	For left-eye lenses
	Pliable cup (green)	For right-eye lenses
	Double-coated adhesive pad for pliable cup	100 sheets per set
	Pliable cup for high base curve lenses (green)	For right-eye lenses
	Pliable cup for high base curve lenses (red)	For left-eye lenses
	Double-coated adhesive pad for pliable cup	100 sheets per set
	Mini cup (red)	For left-eye lenses
	Mini cup (green)	For right-eye lenses
	Double-coated adhesive pad for pliable cup	Use the pad by trimming it to an appropriate size.
	Nano cup (red)	For left-eye lenses
	Nano cup (green)	For right-eye lenses
	Supporter	For nano cups
	Double-coated adhesive pad for supporter	100 sheets per set

7.8 Checklist

◆ Pre-use checklist

ME-1500 pre-use checklist

Item	Check (date and by whom)
Before turning on the instrument	
The power cord is connected to the power inlet and outlet securely.	
The cables of the connected instruments are connected securely.	
The connected instruments are turned on.	
The processing chamber and its door are clean.	
The wheels have no abnormality such as chipping or cracking.	
The drill bit has no abnormality such as breaking or deformation.	
The feeler unit is clean.	
No object is placed on the processing chamber door.	
The water level in the tank is appropriate.	
The hoses and power cord of the pump tank are connected properly.	
After turning on the instrument	
No error message appears.	
After initialization, the screen is displayed normally.	
The cooling and cleaning water run properly.	

◆ After-use checklist

ME-1500 after-use checklist

Item	Check (date and by whom)
The power switch of the instrument is turned off.	
The connected instruments are turned off.	
The wheels have no abnormality such as chipping or cracking.	
The drill bit has no abnormality such as breaking or deformation.	
The processing chamber has been cleaned.	
The feeler unit has been cleaned.	
The exterior of the instrument has been cleaned.	
There is no damage or loss in the accessories.	
The processing waste in the pump tank has been disposed of properly as industrial waste.	
The pump tank has been cleaned.	
The filter of the pump tank has been replaced.	
The water level in the tank is appropriate.	
When the instrument will not be used for an extended period of time	
The power plug of the instrument is disconnected.	
The power plugs of the connected instruments are disconnected.	
The instrument is covered with a plastic sheet or such to avoid dust.	
The standard accessories such as cables, lens tables, touch pen, pen stand, and operator's manual are all stored.	

8 SPECIFICATIONS AND TECHNICAL INFORMATION

8.1 Specifications

Lens materials and polishing available for each type		
Wheel	Lens material	Polishing
Type PLB-8S	CR39/Hi-index/Polyca./Acrylic/ Trivex/Urethane	Beveling, flat edging, safety beveling
Type PLB-2R8S	CR39/Hi-Index/Polyca./Acrylic/ Trivex/Urethane/Glass	Beveling (except glass lenses), flat edging, safety beveling
Processing unit		Processing / Setting range (unit: mm)
Processing mode	• Beveling	Auto, guide, high base curve
	• Flat edging	
	• Polishing	
	• Safety beveling	
	• Grooving	Auto, guide
	• Drilling	
	• Step beveling	Step, partial step
Processing range	Maximum lens diameter	• Beveling, flat edging A radius of 50 mm or less from the blocked position • Grooving (except glass lenses) Same as that for periphery processing or flat edging • Step beveling ø72 or less (when the step height is 1.5 mm or more)

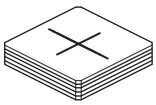
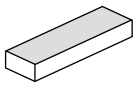
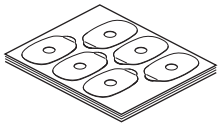
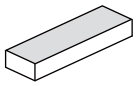
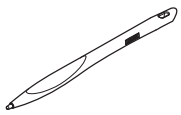
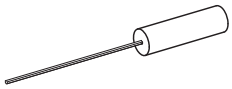
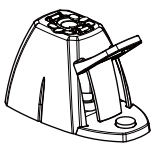
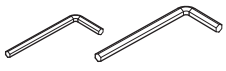
Processing unit		Processing / Setting range (unit: mm)
Processing range	Minimum lens diameter Pliable cup It depends on the cup shape, so processing is not always possible.	• Beveling with safety beveling: ø35.5 × 22.5 without safety beveling: ø33.0 × 21.0 • Flat edging with safety beveling: ø34.5 × 21.5 without safety beveling: ø32.0 × 19.5 • High base curve beveling without safety beveling: ø39.0 × 26.0 • Grooving (except glass lenses) Same as that for periphery processing or flat edging • Step beveling Same as that for periphery processing or high base curve beveling
	Minimum lens diameter Mini cup (option) It depends on the cup shape, so processing is not always possible.	• Beveling with safety beveling: ø25.5 × 20.9 without safety beveling: ø23.0 × 18.4 • Flat edging with safety beveling: ø24.5 × 19.9 without safety beveling: ø22.0 × 17.4 • High base curve beveling without safety beveling: ø29.0 × 24.4 • Grooving (except glass lenses) Same as that for periphery processing or flat edging • Step beveling Same as that for periphery processing or high base curve beveling
	Minimum lens diameter Nano cup (option) It depends on the cup shape, so processing is not always possible.	• Beveling with safety beveling: ø24.0 × 19.5 without safety beveling: ø21.0 × 16.5 Flat edging with safety beveling: ø23.0 × 18.5 without safety beveling: ø20.0 × 15.5 • High base curve beveling without safety beveling: ø27.0 × 22.5 • Grooving (except glass lenses) Same as that for periphery processing or flat edging • Step beveling Same as that for periphery processing or high base curve beveling
Layout setting range	• FPD	30.00 to 99.50 (0.01 increment)
	• PD	30.00 to 99.50 (0.01 increment)
	• 1/2PD	15.00 to 49.75 (0.01 increment)
	• Optical center height	±15.00 (0.01 increment)
	• Size adjustment	±9.95 (0.01 increment)

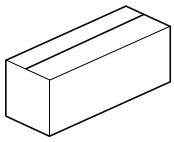
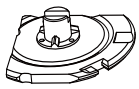
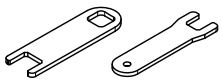
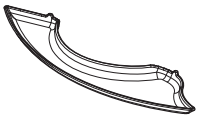
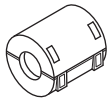
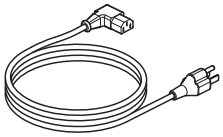
Wheel configuration		Size (unit: mm)
Type PLB-8S	• High base curve finishing wheel	ø100 with a thickness of 8
	• Finishing wheel	ø100 with a thickness of 16
	• Polishing wheel	ø100 with a thickness of 15
	• Roughing wheel for plastic lenses	ø100 with a thickness of 23
Type PLB-2R8S	• Roughing wheel for glass lenses	ø90 with a thickness of 15
	• High base curve finishing wheel	ø100 with a thickness of 8
	• Finishing wheel	ø100 with a thickness of 16
	• Polishing wheel	ø100 with a thickness of 15
	• Roughing wheel for plastic lenses	ø100 with a thickness of 23
Lens chucking	Chucking method: Electric Chuck pressure: 45 ±3 kgf	
Sound pressure level	85 db or less at the position 1 m away from the instrument	

Communication function	
External communication	• RS-232C: 3 ports • Ethernet: 1 port • USB: 1 port
Control outlet	• For Pump1: 1 unit • For Pump2: 1 unit • For other: 1 unit
Power requirements	
Voltage	100 to 120 V AC, 200 to 240 V AC * The voltage fluctuation does not exceed ±10% of the nominal voltage.
Frequency	50/60 Hz
Power consumption	1.5 kVA at the maximum
Dimensions and mass	
Dimensions	600 (W) × 496 (D) × 355 (H) mm (excluding protrusions)
Mass	52 kg or less (excluding optional accessories)
Environmental conditions (during use)	
Installation location	Indoors
Temperature	5 to 40°C (41 to 104ºF)
Humidity	5 to 31°C (41 to 87.8ºF): 30 to 80% 31 to 40ºC (87.8 to 104ºF): The minimum acceptable relative humidity is 30%. The maximum acceptable relative humidity is 80% for temperatures up to 31ºC (87.8ºF), which decreases linearly to 50% at 40ºC (104ºF).
Altitude	Up to 2,000 m
Overvoltage	Category II (IEC60664-1)

Pollution degree	2 (IEC60664-1)
Environmental conditions (during transport and storage)	
Temperature	0 to 50°C (32 to 122ºF)
Humidity	0 to 85% (non-condensing) *The conditions during transport and storage apply to the instrument when packed.)
Circulation pump and tank (option)	
Number of pumps	2 units
Maximum rated pressure	30 kPa
Maximum flow volume	10 L/min
Maximum tank dimensions for reference	375 (W) × 438 (D) × 354 (H) mm (when the optional table is used)
Overvoltage	Category II
Tank capacity	15 to 18 L (for circulation type)

Standard accessories

Part name	Quantity	Appearance	Part name	Quantity	Appearance
Pliable cup (green and red)	4 units each		Flat lens	3	
Pliable cup for high base curve lenses (green and red)	3 units each		Dressing stick for finishing wheel (WA320K)	1	
Double-coated adhesive pad for pliable cup (100 sheets)	1		Dressing stick for glass roughing wheel (WA80K)	1	
Touch pen	1		Hexagonal screwdriver (2.5 mm)	1	
Pliable cup remover	1		Hexagonal wrench (3.0 mm, 5.0 mm)	1 unit each	

Standard accessories					
Compound kit for polishing wheel	1		RMU/LMU calibration jig	1	
Adapter set	1		Wrench (for drill bit replacement)	1 unit each	
Tray	1		Ferrite core	1	
Drill bit (10 units)	1		Operator’s manual	1	
Power cord	1		Installation manual	1	

Optional accessories
Barcode scanner, internal barcode scanner, circular pump tank, water supply connecting unit, centrifugal separation filtration unit, deodorizer, table, mini cup set, nano cup set, USB flash drive, drill bit (ø1.0), drill bit (ø1.2), drill bit (ø1.6)

8.2 Software License

License information of the open source software (OSS) used in this product can be found at the following URL.

https://www.nidek-intl.com/aboutus/entry-5011.html/

9 INDEX

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