

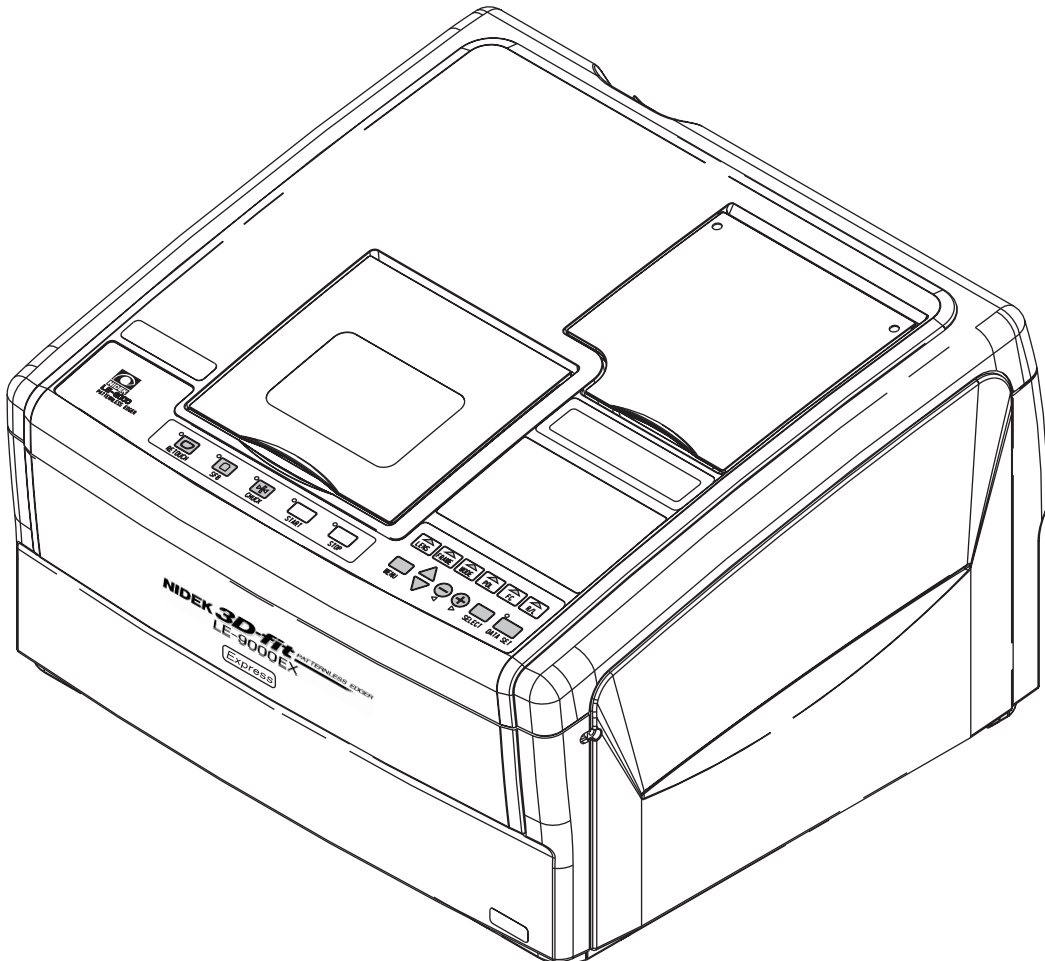
NIDEK

PATTERNLESS EDGER

Model LE-9000EX Express/LE-9000DX Express

OPERATOR'S MANUAL

CE





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BEFORE USE OR MAINTENANCE, READ THIS MANUAL.

This Operator's Manual contains information necessary for the operation of the NIDEK PATTERNLESS EDGER Model LE-9000EX Express/LE-9000DX Express Type PC, Type PL4, Type PLB, and Type PLB-2R.

This manual includes the operating procedures, safety precautions, specifications, and information about accessories, and maintenance. IEC and UL standards are applied in this manual. This manual is necessary for proper use. Especially, the safety precautions and operating procedures must be thoroughly understood prior to operation of the device. Keep this manual handy for reference.

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

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§1 INTRODUCTION

1.1 Outline of the Product

This instrument is a fully-automatic lens edger which processes lenses into the shape of the frames according to the traced data of the frames read through communication.

This edger has a processing unit at the center front, a processing unit control panel at the front, a display panel at the front right. Layout data is input into the processing unit control panel, the display panel presents the traced outline and layout data, and the processing unit processes the lens into a desired shape.

Several kinds of processing wheels are provided in the processing unit, and therefore, this instrument selects the most suitable wheels and the processing sequences according to the lens material to be processed.

[Lens materials and processing modes]

Type	Lens material					Processing mode				
	Plastic	High index plastic	Polycarbonate	Glass	Acrylic resin	Beveling	Flat edging	Grooving (EX Express only)	Polishing	Chamfering (EX Express only)
PC	○	○	○	○	○	○	○	□	×	○
PL4	○	○	○	○	○	○	○	□	□ flat edging only	○
PLB	○	○	○	×	○	○	○	□	□	○
PLB-2R	○	○	○	○	○	○	○	□	□	○

○ : Processing is available.

× : Processing is unavailable.

□ : Processing is available (except for glass lenses).



1.2 Symbol Information



This symbol on the body indicates that caution should be taken. It is necessary to refer to the Operator's Manual before using the instrument.



This symbol indicates caution for electric shock. The inside of the instrument includes high-voltage circuits. Do not take off the cover.



This symbol on the power switch indicates that the power is ON.



This symbol on the power switch indicates that the power is OFF.



This symbol indicates the contrast adjustment.



This symbol indicates the fuse rating.



This symbol indicates that the instrument must be supplied only with alternating current.



This symbol indicates the date of manufacture.



This symbol indicates the manufacturer.



This symbol indicates that this product shall be disposed of in a separate collection of electrical and electronic equipment in EU.

§2 SAFETY

In this manual, Signal Words are used to designate a degree or level of safety alerting. The definitions are as follows.


⚠ WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage accident.


Even situations that are labeled **⚠ CAUTION** may result in serious injury under certain conditions. Safety must be followed strictly at all times.

2.1 Cautions during Use

⚠ WARNING

- Never touch the processing wheel when it is turning.
Injury may occur.
- Be sure to keep the soundproof cover closed during processing.
Spray including processing waste may cause eye damage.
- Should abnormal conditions such as cracks or bare areas on the processing wheel have been found, stop using the instrument immediately and contact NIDEK or your authorized distributor.
Continued use of the instrument may cause the wheel to break and scatter, causing injury.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.
- Be sure to use this instrument only to process eyeglass lenses.
If this instrument processes any other materials, the processing wheels may be damaged and cannot perform normal processing. Moreover, the wheels may break and broken pieces may injure personnel.

CAUTION

- Never disassemble nor touch the internal structure.
Electric shock or failure of the instrument may occur.
- Never yank the power cord to disconnect it from the wall outlet. Always hold the plug.
This can damage the metal core of the cord and may result in fire, short circuit or electric shock.
- If the internal wires of the power cord are exposed, power to the instrument is interrupted by moving the cord, or the plug or cord becomes extremely hot, this indicates that the cord is damaged.
Immediately remove the plug from the outlet and contact NIDEK or your authorized distributor for replacement; otherwise, electric shock or fire may result.
- Do not crush or squeeze the power cord with heavy objects such as the instrument itself.
Damage to the cord may result in fire or electric shock.
- Occasionally, clean the prongs of the power plug with a dry cloth.
If dust settles thickly on them, they will become damp, and may cause short circuit or fire.
- Plug in the power cord correctly until its prongs are fully inserted into the socket.
If the instrument is used with an insecure connection, fire may occur.
- In the event that the instrument gives off smoke, or a strange smell, etc., turn off the power and unplug the power cord. After smoke stops coming out of the instrument, contact NIDEK or your authorized distributor.
If an instrument which has this kind of abnormal condition is used, fire or electric shock may occur. In case of fire, use a powder (ABC) extinguisher.
- If the instrument detects any abnormal condition during use, the error code will be shown on the display panel and the instrument will stop.
Turn the power switch off after confirming the error code.
- Be sure to select the correct lens material with 
If the wrong material is selected, the lens may break or the lifetime of the processing wheel may be reduced.
- Be sure to chamfer the front edge and rear edge of a glass lens after processing.
Minute burrs may damage one's skin.
- Be sure not to apply excessive stress on the stylus of the tracing unit.
The stylus is easy to bend or break.
- Be careful not to get your fingers caught when chucking (fixing) a lens.

⚠ CAUTION

- When removing the lens cup with the cup remover, hold the lens with a soft cloth.
If you hold the lens with bare hands, the lens edge may injure them.
- Be sure to confirm that wash water (for the inside wall of the processing chamber) and cooling water (for the wheels) flow properly.
If water does not flow, lenses are not processed properly and the edger may be damaged.

NOTE

- The optional pliable lens cup is a consumable. When the double-coated adhesive tape becomes hard to remove from the pliable lens cup, replace it with a new one.

2.2 Storage

⚠ CAUTION

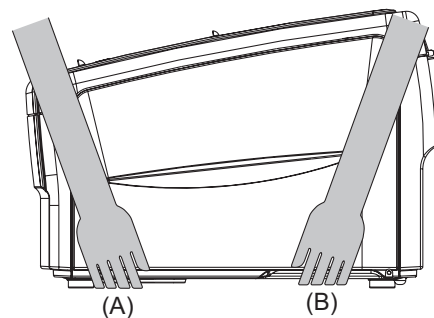
- Do not store the instrument where it may get wet or where poisonous gases or liquids are present.
- Maintain the instrument under the following conditions during transport and storage (packed).

Conditions	Temperature:	-25°C - 70°C
	Humidity:	10% - 100%
	Pressure:	700 hPa - 1060 hPa

2.3 Transport

⚠ CAUTION

- When moving the instrument, ask for assistance.
Moving the instrument may cause back injury or injury by falling.
- When moving the instrument, hold (A) and (B) on both of the right and left sides. Be sure not to hold the cover. Only hold the metal part of the underside.
The instrument may be dropped by holding the cover only and it may cause injury and malfunction.
- When putting the instrument down, be careful not to get your fingers caught.
Fingers may get caught between the cabinet and instrument injuring them.
- Use the specified packing material when transporting the instrument to lessen the damage if dropped.
Excessive vibration or shock to the instrument may cause instrument malfunction.



2.4 Installation

! CAUTION

- Use the instrument under the following conditions.
 - A dust free environment
 - A stable place with no tilt
 - A vibration and shock free environment
- Install the instrument where it can be used at the following temperature and humidity.

Use conditions	Temperature:	5°C - 40°C
	Humidity:	Relative humidity does not exceed 50% at a maximum temperature of 40°C.
	Pressure:	700 hPa - 1060 hPa
- Install the instrument in a location that provides the operation area specified on p. 2-6.
- Install the instrument on the specified table (option) or a stage which is strong enough for the weight (42 kg) of the instrument.

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

- Use a stage whose size is larger than the measurements of the figure to the right. Also set the adjuster at the foot of the stage so that the stage can be adjusted without tilt or play.

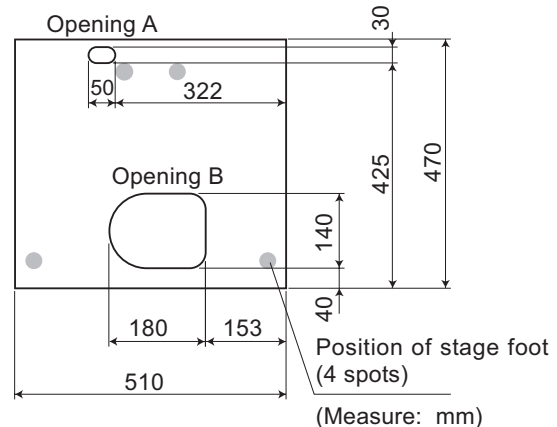
It is necessary to make openings in the top to draw the pipe and cord through.

Opening A:

For the power cords of the pumps

Opening B:

For the feedwater hoses and drain pipe



- Do not install the instrument in a place exposed to direct sunlight or where the temperature and humidity are high.
- Install the instrument where pollutants such as corrosive gases, acids, and salts are not present.

Corrosion or malfunction of the instrument may occur.
- Be sure to keep 3 cm or more of space in the rear so that the fan will not be blocked.

If the fan is blocked, the temperature of the inside of the instrument will rise, and it may cause malfunction.

2.5 Wiring

CAUTION

- Do not overload one electrical outlet.
Abnormal heat generation may occur at the outlet in conjunction with the other devices.
- Be sure to use a socket which meets the power specifications.
If the line voltage is too high or low, the instrument may not perform properly. Malfunction or fire may also occur.
- Be sure to ground the instrument.
Electric shock or fire may occur in the event of failure or electrical leakage.

2.6 After Use

CAUTION

- If the instrument will not be used for a long time, unplug the power plug from the wall outlet.
If a thick layer of dust settles on the prongs of the plug, it will become damp, and short circuit or fire may occur.
- Clean the processing unit after the last use of the day.
If it is left for several days after use, the processing waste becomes settled and hard to remove.
- Turn the power switch OFF and keep the soundproof cover closed when the instrument is not in use.
If dust settles, it may affect the measurement accuracy or cause malfunction.

2.7 Maintenance and Check

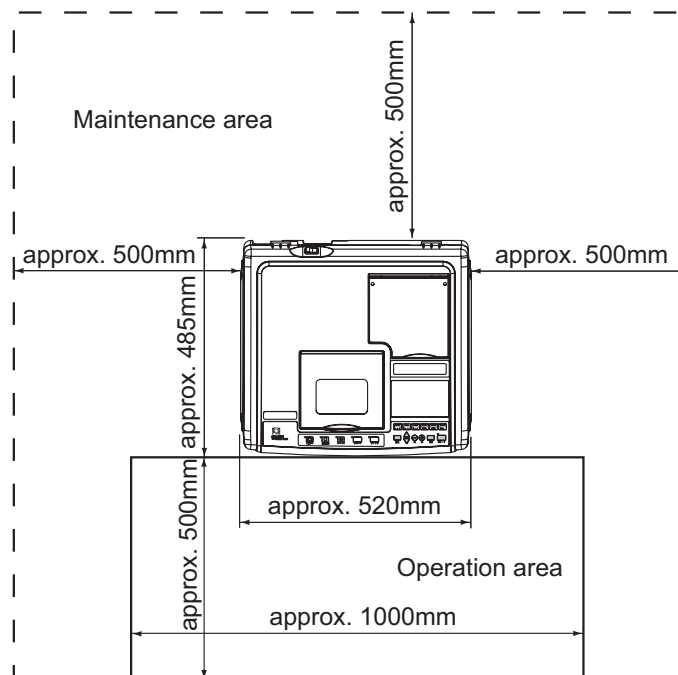
CAUTION

- Be sure to perform starting inspection before use and finishing inspection after use. It is recommended to have an inspection every two years.
Inspection is performed by a service person. Contact NIDEK or your authorized distributor.
- Be sure to maintain a space (see p. 2-6) large enough for maintenance.
Working in a tight place may cause injury.

⚠ CAUTION

- Be sure to use the specified fuses for replacement.
Otherwise, fire may occur.
- Be sure to use the suitable dressing stick for wheel dressing.
Otherwise, the wheel may be damaged and normal processing cannot be done.
- Be sure to replace a dressing stick worn some 4 cm with a new one.
It is hard to hold the shortened dressing stick, and hand injury may occur.
- Be sure to wear protective glasses for wheel dressing.
Spray including processing waste may cause eye damage.
- Never dress the roughing wheel for plastic lenses.
The wheel may be damaged.
- In the dressing mode, the cover sensor is released and the wheels turn with the soundproof cover open. While dressing, work with special care.

[Operation area/ Maintenance area]




⚠ CAUTION

- Be sure to use the specified stocking filter only.
If not, the filter or water supply pipe may become clogged.
- The stocking filter is disposable. Do not reuse it.
A filter which has a rip or run in it does not function as a filter, and therefore, the water supply pipe may become clogged.
- Never use an organic solvent such as paint thinner to clean the exterior of the instrument.
This could damage the surface.

2.8 Disposal

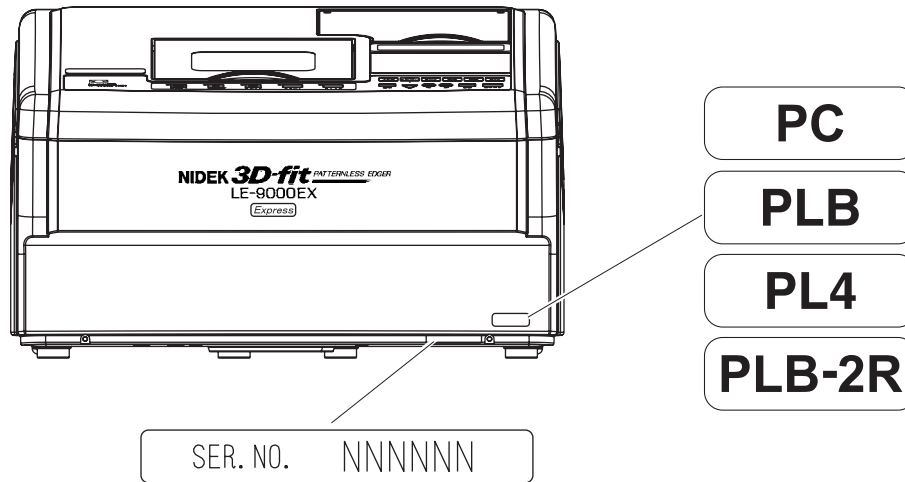
NOTE

- Follow local governing ordinances and recycling plans regarding disposal or recycling of device components.
- When disposing of packing materials, sort them by material, and follow local governing ordinances and recycling plans.
- When disposing of the wastes of lenses, follow local governing ordinances.

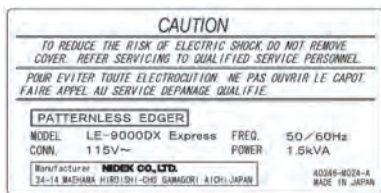
2.9 Labels

The following labels provide safety information about each part.

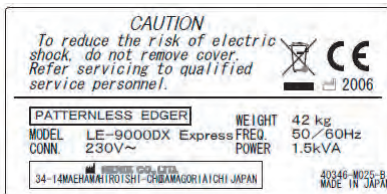
<Front view>



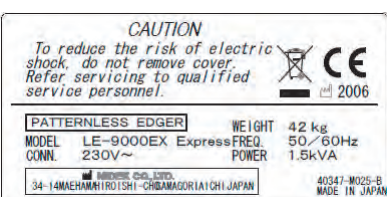
<Rear view>



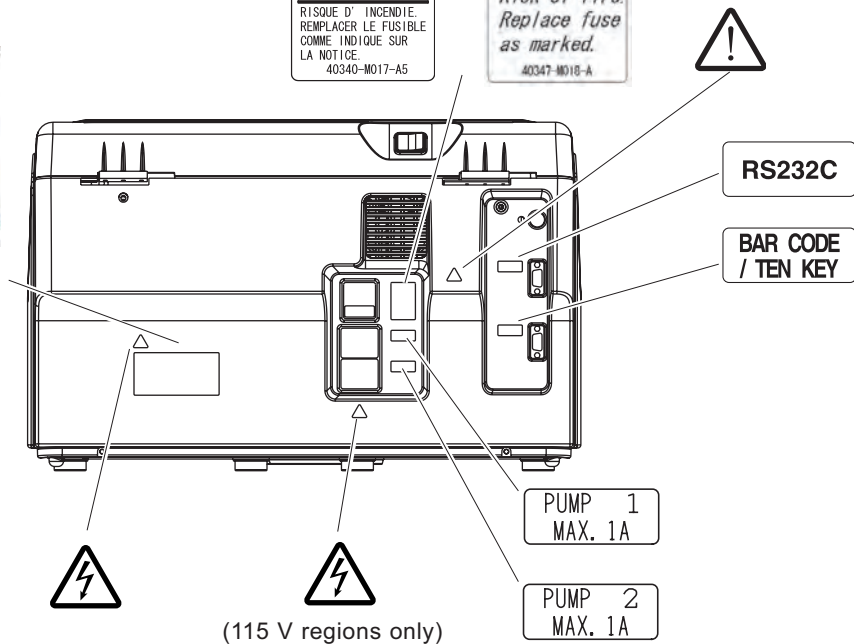
or



or



or

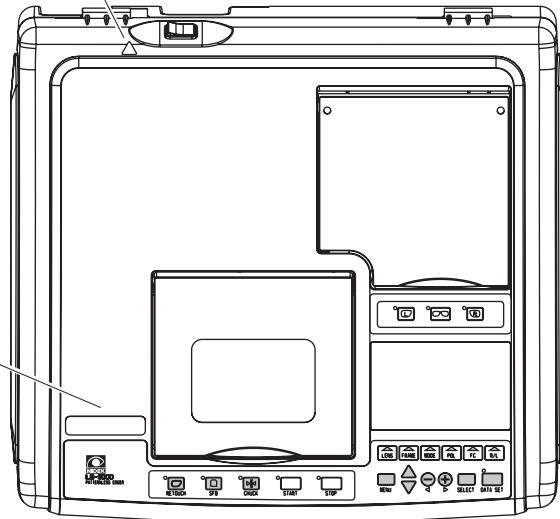


<Top view>

⚠ WARNING
 DO NOT OPEN DURING GRINDING.
 MAKE SURE THE ROTATING WHEEL HAS STOPPED
 BEFORE ENTERING GRINDING COMPARTMENT.
 NE PAS OUVRIR LE CAPOT PENDANT LE
 MEULAGE. ATTENDRE QUE LES MEULES SOIENT
 ARRETEES AVANT D'OUVRIR LE CAPOT.

or

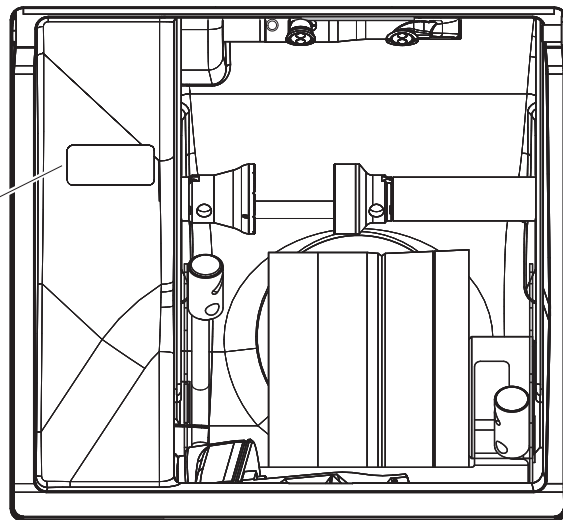
⚠ WARNING
 Do not open during grinding.



CAUTION
 KEEP HANDS CLEAR OF
 CHUCKING MECHANISM.
 NE PAS METTRE LES DOIGTS
 DANS LE PRESSE-VERRE.

or

CAUTION
 Keep hands clear of
 chucking mechanism.



2.10 Safety Functions

For safety, various functions are provided.


[Soundproof cover check function at the start of processing]

Lens processing does not start unless the soundproof cover is closed.

CAUTION

- If the soundproof cover is opened during processing, the instrument does not stop. Be sure not to open the soundproof cover during processing since it is hazardous.
In addition, open the soundproof cover only after making sure that the wheels have come to a complete stop.

[Stop key]

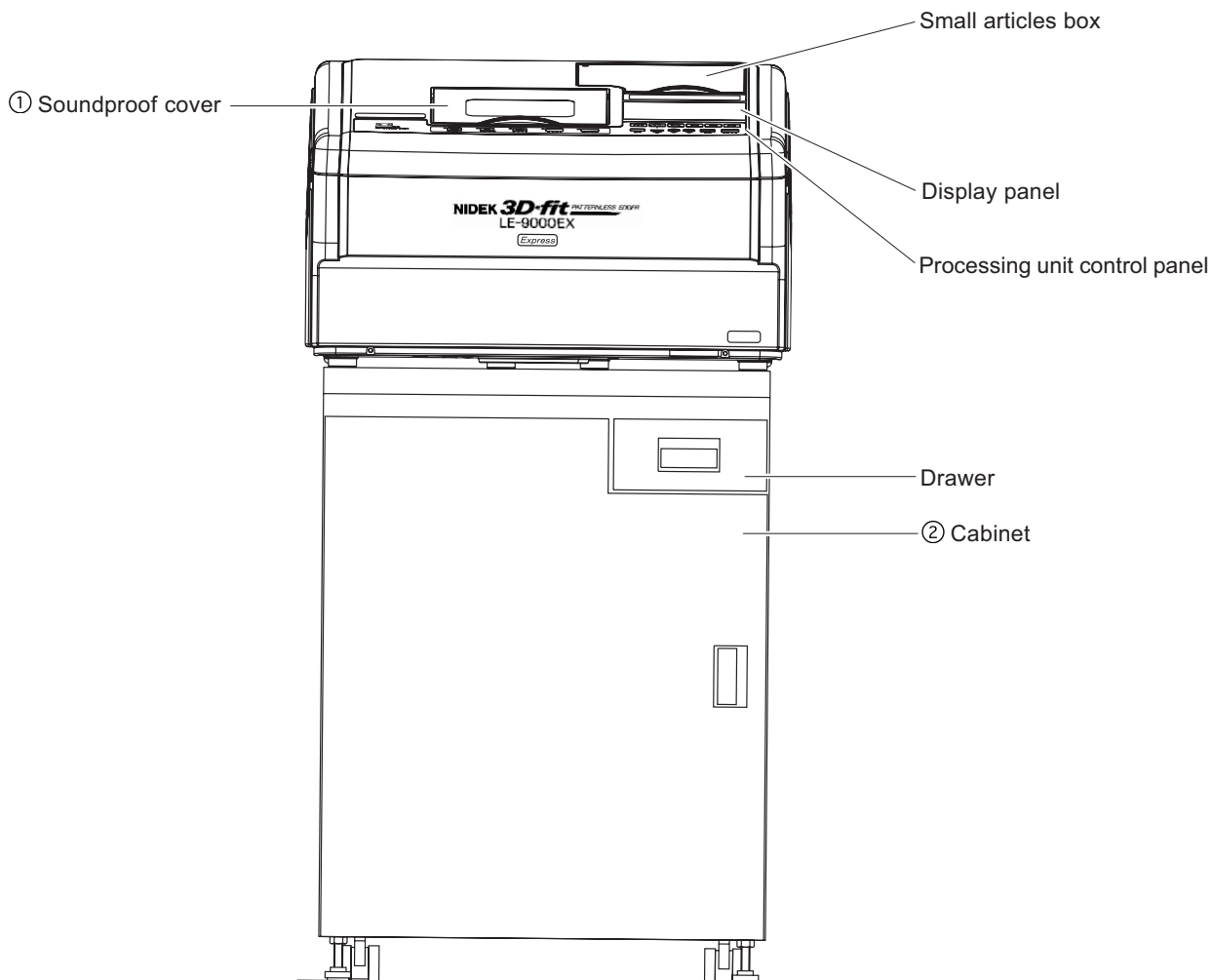
This is the key to stop processing. Processing can be stopped immediately under abnormal conditions. Turn the power switch OFF when necessary. To restart processing after stopping, press .

[Self-check function]

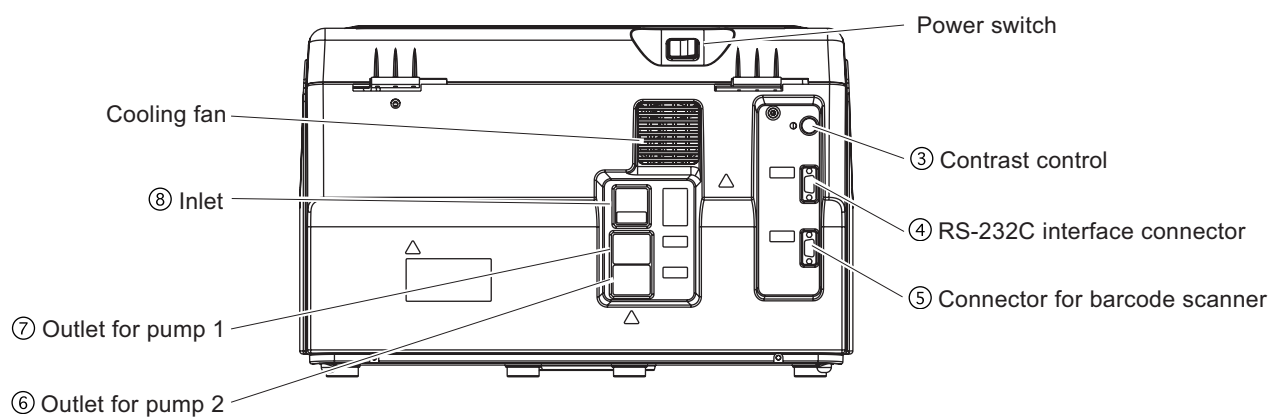
Operation conditions are checked at all times by this function. If something unusual occurs in the instrument, operation will immediately stop and display the error code which indicates the error content on the display panel.

§3 CONFIGURATION

[Whole system]



[Rear side of the main body]



① Soundproof cover

Prevents water and processing waste from spraying, and it blocks the processing sound. There is a processing unit under this cover.

The cover must be kept closed during processing.

② Cabinet

This is a special cabinet for the instrument, in which the drain pipe, feedwater hoses and tank can be stored.

The drain pipe and feedwater hoses are connected to the main body through the opening of the cabinet.

③ Contrast control

Adjusts the contrast of the display panel. Turn the control according to its use environment to clear the screen.

④ RS-232C interface connector

This is a connector to which an external device is connected.

This connector conforms to RS-232C interface. Traced data needs to be read from an external device in communication as the LE-9000EX Express/LE-9000DX Express does not contain a frame tracer.

⑤ Connector for barcode scanner

This is a connector to which the optional barcode scanner (or numeric keypad) is connected.

⑥ Outlet for pump 2**⑦ Outlet for pump 1**

These are where the power cord of the feedwater hose 2 and feedwater hose 1 is each connected.

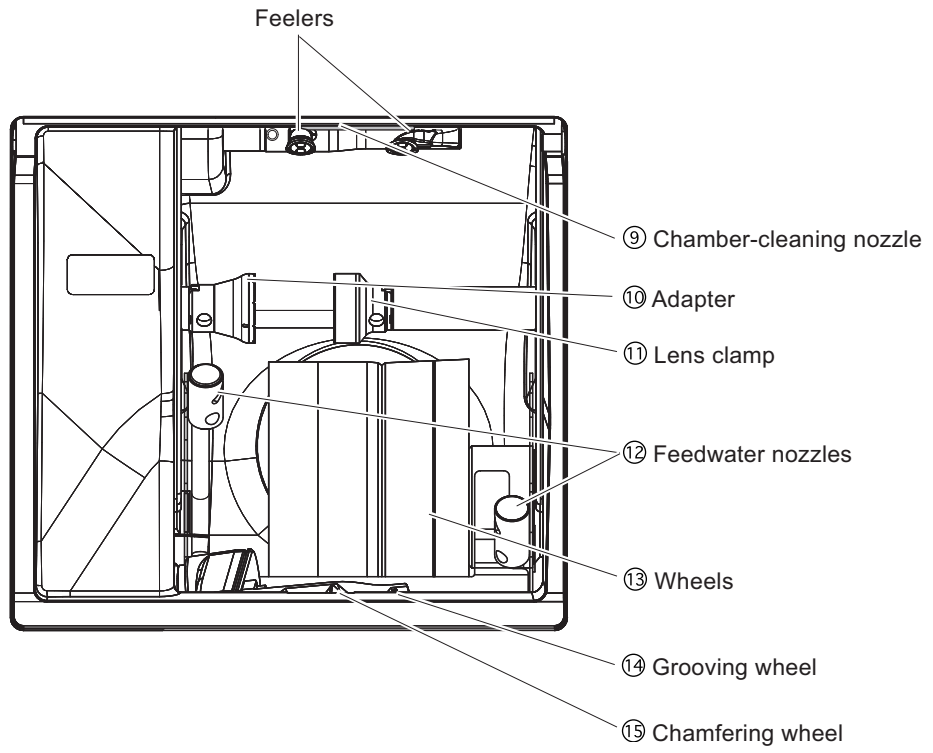
The feedwater pump unit automatically turns ON and OFF in synchronization with the working of the processing unit.

⑧ Inlet

This is where the power cord of the main body is connected.



[Processing unit]



⑨ Chamber-cleaning nozzle

During processing of a lens, the water supplied by the nozzle washes processing waste away before they disperse within the processing chamber. Water prevents the processing waste from settling in a space between the processing wheel and the bottom of the chamber, which would adversely affect the processing ability of the instrument.

⑩ Adapter

The blocked lens is set to the adapter.

When processing a half-eye lens, replace the adapter with the one for half-eye lenses.

⑪ Lens clamp

The lens set to the adapter is pushed from the opposite side and held by this clamp.

When processing a half-eye lens, replace the clamp with the one for half-eye lenses.

⑫ Feedwater nozzle

Supplies water to the periphery of the lens during processing.

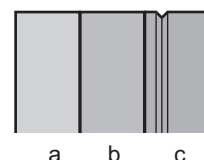
⑬ Wheels

Several different types of wheels compose a set of processing wheels.

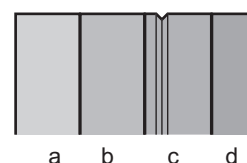
- a. Roughing wheel for plastic lenses:
For roughly processing plastic, polycarbonate and acrylic resin or trivex lenses
- b. Roughing wheel for glass lenses:
For roughly processing glass lenses
- c. Finishing wheel:
For finishing lenses
- d. Polishing wheel:
For polishing edges of lenses

[Wheel combination]

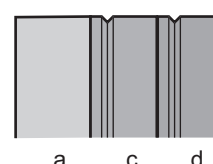
- TYPE PC



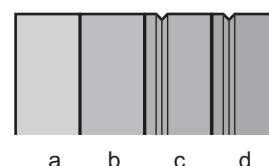
- TYPE PL4



- TYPE PLB



- TYPE PLB-2R



⑭ Grooving wheel

(LE-9000EX Express only)

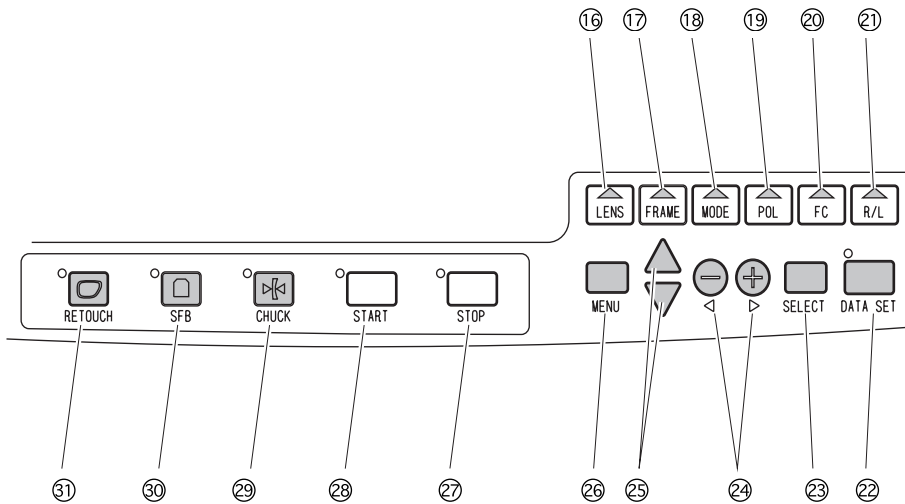
This is the wheel to groove lenses for nylon frames.

⑮ Chamfering wheel

(LE-9000EX Express only)

This is the wheel to chamfer lenses.

[Control panel for processing unit]
















①⑥ Selects a lens material; PLA (plastic), HPL (high index plastic), PC (polycarbonate), GLS (glass), ACR (acrylic resin) or TRX (trivex). (For Type PLB, GLS cannot be selected.)



①⑦
①⑧ Selects processing conditions.

Processing mode	setting	setting
Auto processing	MTL/CEL (ZYL)	AUT
Guided processing	MTL/CEL (ZYL)	GUI
EX lens processing	MTL/CEL (ZYL)	EX
Flat (rimless) edging	PNT/NYL	(blank)
EX lens flat edging	PNT	EX
Auto grooving (LE-9000EX Express only)	NYL	AUT
Guided grooving (LE-9000EX Express only)	NYL	GUI
EX lens grooving (LE-9000EX Express only)	NYL	EX

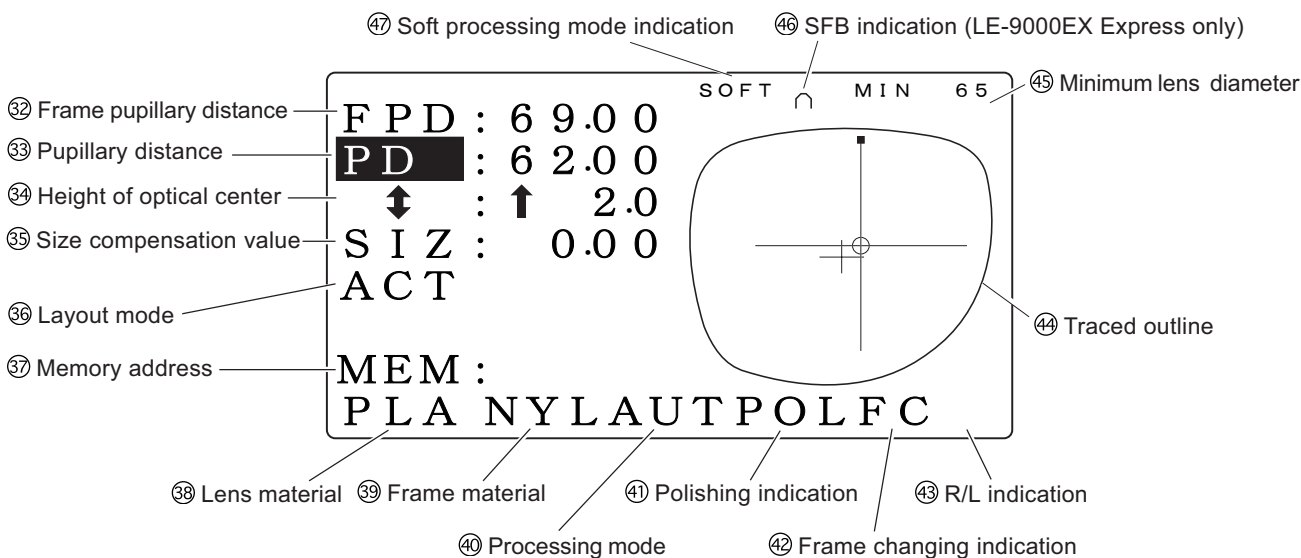
- ①⑨  Turns ON/OFF the polishing mode. (This key does not function for Type PC.)
- ②⑩  Turns ON/OFF the simple frame changing mode.
- ③⑪  Specifies the lens to be edged, right (R) or left (L).
- ④⑫  Reads traced data, etc.
- ⑤⑬  Changes the inputting form of layout data, etc.
- ⑥⑭  Enters prescription data, etc.
- ⑦⑮  Moves the cursor.
- ⑧⑯  Switches the screen in the following order.
Layout screen→ MENU screen→ Parameter exchange mode screen
This key does not function during processing.*¹
- ⑨⑰  Stops processing.
- ⑩⑱  Starts processing.
- ⑪⑲  Fixes a lens with the lens clamp or releases a lens from the clamp.
- ⑫⑳  **(LE-9000EX Express only)**
Turns ON/OFF the SFB mode.
- ⑬㉑  Starts retouching.

*1 When this key is pressed while beveling during the roughing process, the screen is switched between the Bevel simulation screen and Layout screen.

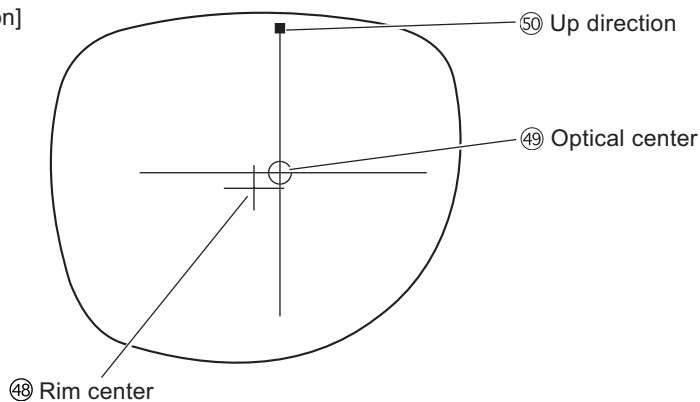
[Display Panel]

• LAYOUT SCREEN

Lens layout and prescription data input, etc. are performed on this screen.




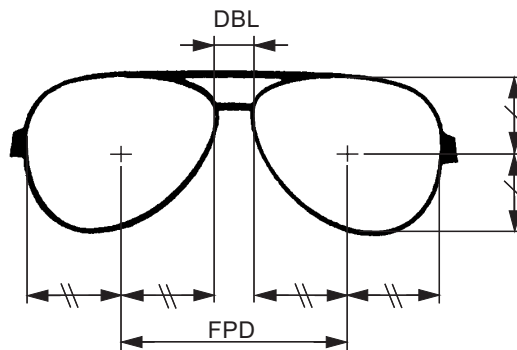
[Pattern indication]



③② Frame pupillary distance (FPD)

Indicates the distance between the right and left rim centers. [30.00 - 99.50 mm (increment: 0.50 mm)] The rim centers are calculated by the boxing system.

It is possible to input DBL by aligning the cursor to **FPD** and pressing .



③③ Pupillary distance (PD)

Indicates the pupillary distance referred in the prescription. [30.00 - 99.50 mm (increment: 0.50 mm)] It is also possible to input monocular PD (1/2PD).

③④ Height of optical center (↑ ↓)

Indicates the height of the optical center from the level of the rim center (boxing center).

[↓ 15.0 - ↑ 15.0 mm (increment: 0.1 mm)]

③⑤ Size compensation value (SIZ)

Indicates the compensation value for the desired finished size in diameter, based on the traced size of the frame or pattern (0.00).

[-9.95 - +9.95 mm (increment: 0.05 mm)]

③⑥ Layout mode

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

③⑦ Memory address (MEM)

This address is used to store or to read traced pattern data when the memory function is used. See “5.4 Storing and Calling Up Traced Data (p. 5-7)”.

The indication of an address whose data has already been stored is highlighted.

* This is not shown depending on the parameter setting of “Ext. interface”.

③⑧ Lens material

The specified lens material [PLA (plastic), HPL (high index plastic), PC (polycarbonate), GLS (glass), ACR (acrylic resin) or TRX (trivex)] is indicated.

③⑨ Frame material

[MTL (metal), CEL (celluloid)/ZYL, PNT (two-point), or NYL (nylor)].

④⑩ Processing mode

Indicates the processing mode.

[AUT, GUI, EX, or (Blank)]

(Blank) indicates flat edging without a groove.

④⑪ Polishing indication

Indicates the polishing mode.

④⑫ Frame changing indication

Indicates the simple frame changing mode.

④⑬ R/L indication

Indicates the selected lens to be processed [R/L].

④⑭ Traced outline

Represents the plain figure of a traced outline in actual size.

④⑮ Minimum lens diameter (MIN)

Indicates the minimum lens diameter required for processing. It appears when data of ③③ to ③⑤ are entered.

④⑯ SFB indication**(LE-9000EX Express only)**

When the SFB mode is selected, \frown or \sqcap is shown.

\frown → Both lens edges are chamfered.

\sqcap → Rear lens edge is chamfered.

Setting of \frown or \sqcap can be changed in the SFB mode of the Groove & SFB adjustment parameter. See “8.13.1 Setting the SFB mode and chamfering amount (p. 8-31)”.

④⑰ Soft processing mode indication

Indicates the soft processing mode.

④⑱ Rim center

Represents the position of the rim center.

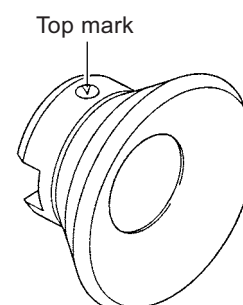
④⑲ Optical center (\oplus)

Represents the position of the optical center.

In the bifocal mode, the segment \cup appears instead of the optical center.

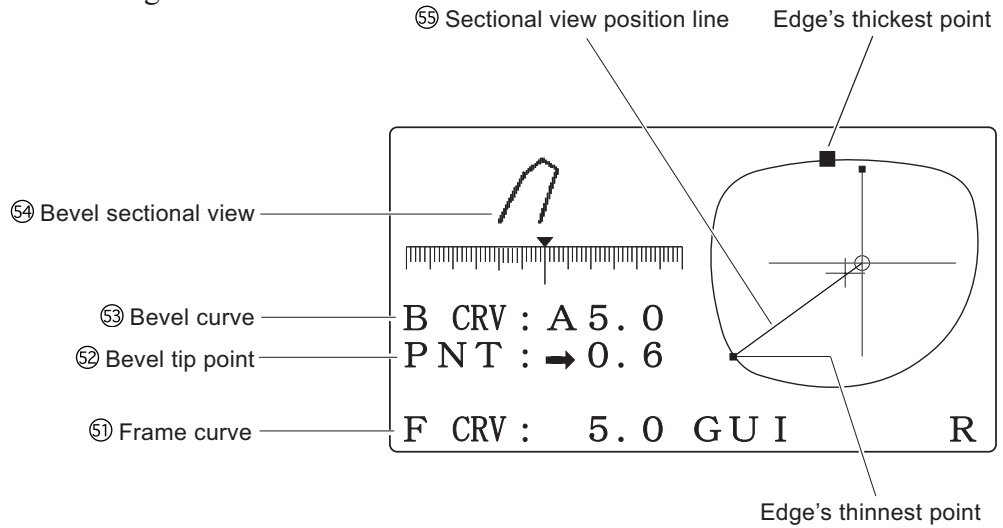
④⑳ Up direction (\blacksquare)

Represents the direction in which the mark on the blocked cup faces.

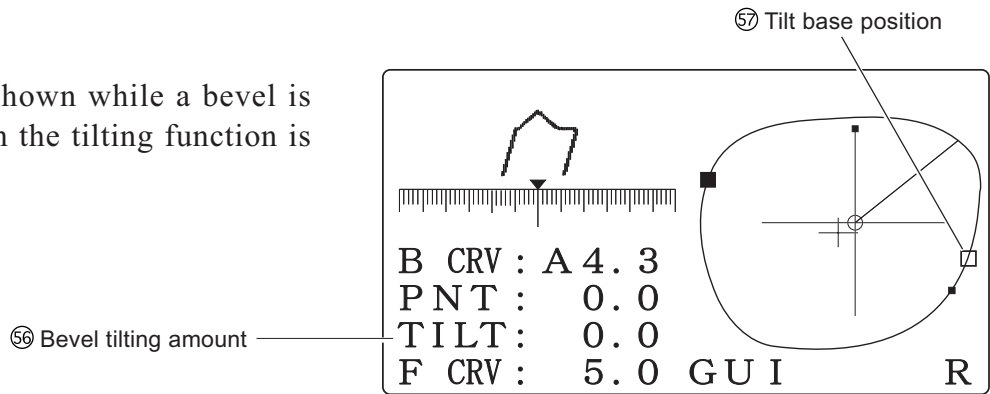


• Bevel simulation screen

This screen is shown while a bevel is simulated (when the tilting function is OFF).

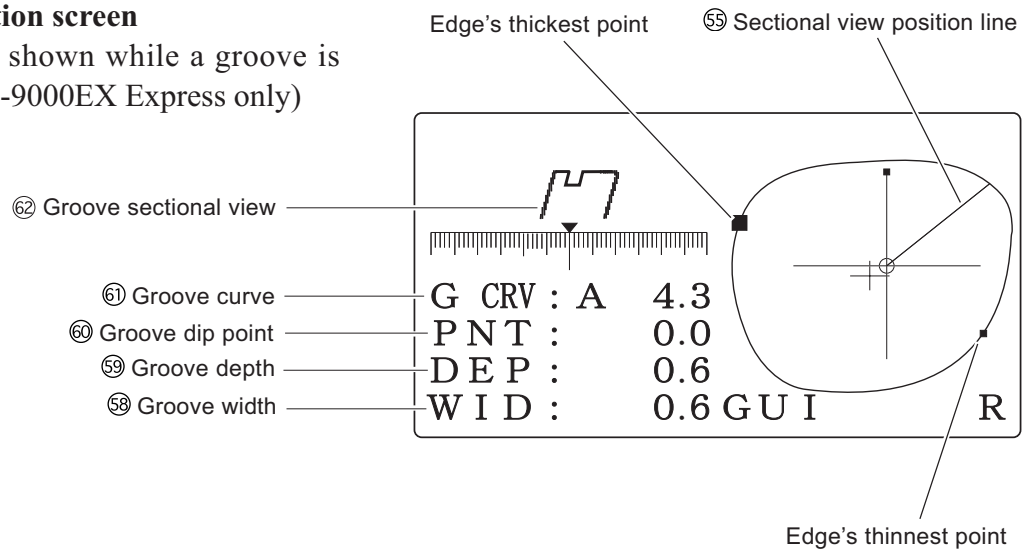


This screen is shown while a bevel is simulated (when the tilting function is ON).



• Groove simulation screen

This screen is shown while a groove is simulated. (LE-9000EX Express only)





⑤① Frame curve (F CRV)

Indicates the frame curve value measured by the tracing unit.

⑤② Bevel tip point (PNT)



Indicates the amount that the bevel is moved, either backward or forward.

In the guided processing mode, align the cursor to **PNT**. Change the value with  or  to move the bevel forward or backward parallel to itself.

[← 15.0 - → 15.0 mm (increment: 0.1 mm)]

⑤③ Bevel curve (B CRV)

Indicates the bevel curve value.

In the guided processing mode, align the cursor to **B CRV**, and change the value with  or . The “A” mark on the head of the value means that it is calculated by computer and is the optimum value.

⑤④ Bevel sectional view

Represents the bevel section where the **⑤④** Sectional view position line is on the traced outline.

The mark “▼” over the scale represents the bevel tip point.

One graduation of the scale is equal to 0.2 mm.

⑤⑤ Sectional view position line

Represents the position of the indicated bevel section along the traced outline.

⑤⑥ Bevel tilting amount (TILT)

Indicates the amount by which the bevel tip point is shifted forward or backward.

Adjust the bevel tip point diagonally-opposite to the boxing center of the tilt base position.

The value can be changed in 0.1 mm increments.

⑤⑦ Tilt base position

This is the base bevel position for determining the tilting amount.

⑤⑧ Groove width (WID)

Indicates the groove width for nylon frames.

[0.6 - 1.2 mm (increment: 0.1 mm)]



⑤⑨ Groove depth (DEP)

Indicates the groove depth for nylon frames.

[0.0 - 0.8 mm (increment: 0.1 mm)]

⑥① Groove dip point (PNT)



Indicates the amount that the groove for nylon frames is moved, either backward or forward.

In the guided grooving mode, align the cursor to **PNT**. Change the value with  or  to move the groove forward or backward parallel to itself.

[← 15.0 - → 15.0 mm (increment: 0.1 mm)]

⑥① Groove curve (G CRV)

Indicates the groove curve value for nylon frames.

In the guided grooving mode, align the cursor to **CRV** and change the value with  or . The “A” mark on the head of the value means that it is calculated by computer and is the optimum value.

⑥② Groove sectional view

Represents the groove section where the **⑤④** Sectional view position line is on the traced outline.

The mark “▼” over the scale represents the groove dip point.

One graduation of the scale is equal to 0.2 mm.

* **⑤⑦** - **⑥①** apply to the LE-9000EX Express only.

• **MENU screen**

This screen shows the selections such as Process counter, Wheel dressing, Size adjustment, and Bevel adjustment. It is used to perform maintenance or adjustment of the edger.

```

*****
*           M     N     U           *
*           Length R: 143.78 L: 143.76 *
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
    
```

• **Parameter exchange mode screen**

This is the screen to set parameters. On this screen, the initial settings of size, pupillary distance (PD), height of the optical center, and the parameter setting related to data communication are done.

```

*****
*           Parameter exchange mode           *
*           Ver. MASTER V1.08.11             *
*           TRACER V2.01                     *
*           TYPE : PL4                       *
*****
→ LANGUAGE      : ENGLISH (S)
  1) Size preset (PLA, MTL) : 0.00
  2) Size preset (PLA, CEL) : 0.00
  3) Size preset (GLS, MTL) : 0.00
    
```

• **Barcode screen**

This screen is available only when the edger is connected to the optional barcode scanner. On this screen, traced data and layout data of a lens are stored and called up. The screen appears when the barcode is read using the barcode scanner.

```

CODE      : 0123456789012345

DATA WRITE : START

DATA READ  : DATA SET

CANCEL    : SELECT
    
```

• **Error code screen**

When any abnormal condition is encountered, the instrument automatically stops and an error code appears on the screen panel. See “B. ERROR CODE”.

```

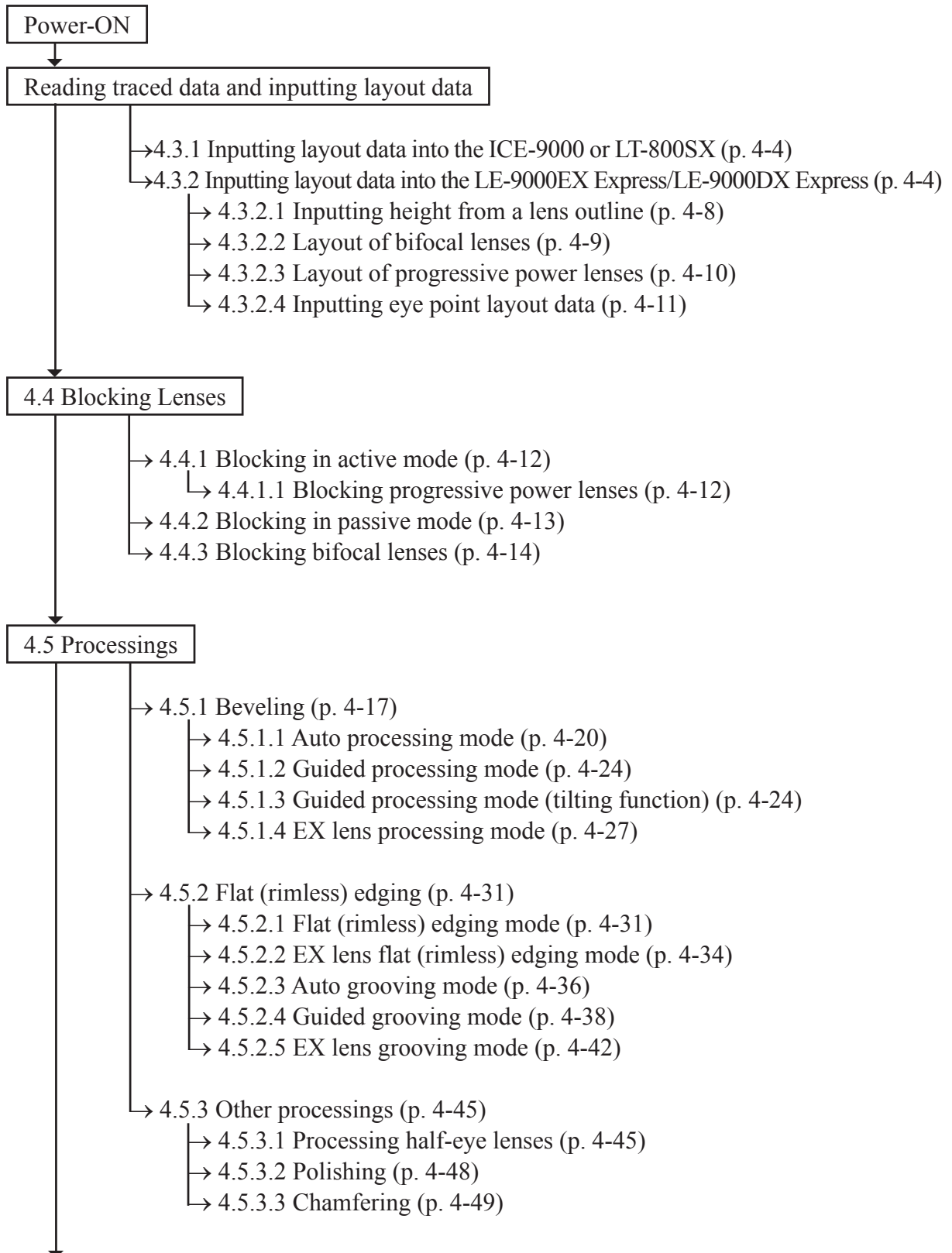
ERROR 0206

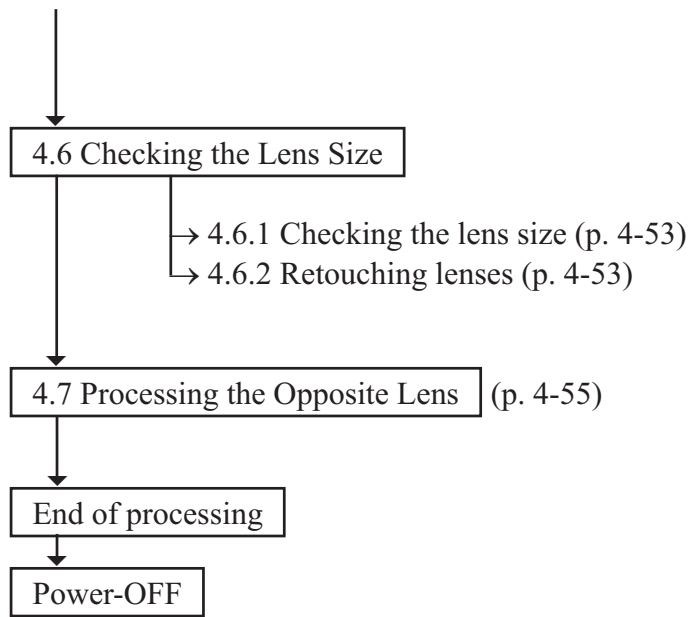

---


Press START SW.
    
```

§4 OPERATING PROCEDURES

4.1 Operation Flow





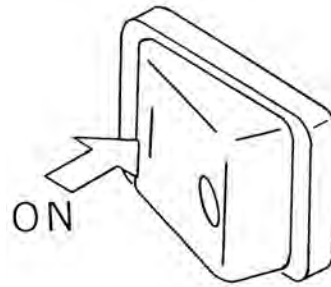
4.2 Preparation

1. Plug the power cord into a wall outlet.

CAUTION

- Do not put too much load on one electrical outlet.
It may cause a fire.
- Prongs of the plug must be fully inserted into the socket.
Incomplete connection may cause a fire.

2. Turn the power ON.



4.3 Layouts

Traced data needs to be read since the LE-9000EX Express/LE-9000DX Express does not contain a tracer (see the Operator's Manual of the connected device for the reading method of traced data). Depending on the connected device, layout data is input into the LE-9000EX Express/LE-9000DX Express, or layout data is input into the ICE-9000, LT-800SX or other devices and read with the traced data.

4.3.1 Inputting layout data into the ICE-9000 or LT-800SX

See the Operator's Manual of the ICE-9000 or LT-800SX for inputting layout data and transmitting it.


- * The processing mode cannot be specified on the ICE-9000 or LT-800SX. Specify the processing mode (Auto, Guided, EX, Blank) on the LE-9000EX Express/LE-9000DX Express (see p. 4-5). If the software version of the ICE-9000 is V 2.13 or later, GUI mode can be specified by the ICE-9000.
- * The safety bevel size cannot be specified on the LE-9000EX Express. Safety bevels of the same size will be made even if the chamfering mode (Small, Middle, Large, Special) is specified. (Chamfering cannot be performed by the LE-9000DX Express.)

4.3.2 Inputting layout data into the LE-9000EX Express/ LE-9000DX Express


1. Read the traced data.

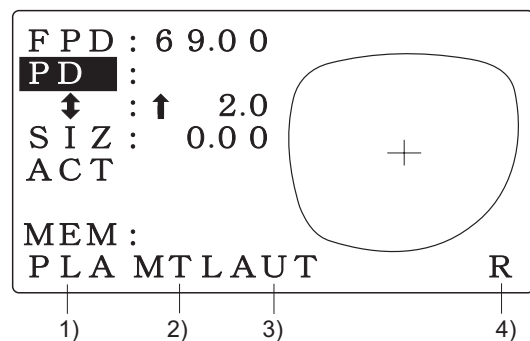
The reading method of data depends on the connected devices. See the Operator's Manual of the connected device.

e.g.:

When the LT-900 and LE-9000EX Express/LE-9000 DX Express are connected one to one (interface format: STD), press  for about 2 seconds.

2. Select processing conditions.

- 1) Specify the material of a lens with .
 - [PLA (plastic), HPL*¹ (high index plastic),
 - PC (polycarbonate), GLS*² (glass), ACR
 - (acrylic resin) or TRX (trivex)*³]




*1 Select HPL when processing plastic lenses which produce burrs and chips easily.



*2 Glass lenses cannot be processed by Type PLB.

*3 To process lenses that melt easily from heat such as a trivex lens, select "TRX".

⚠ CAUTION

- Be sure to specify the correct lens material.
If not, the useful life of the processing wheel may be shortened.

- 2) Select beveling or flat (rimless) edging with .
[MTL, CEL (ZYL), PNT, NYL]
Flat (rimless) edging ⇒ Select [PNT] or [NYL].
Beveling ⇒ Select [MTL] or [CEL].

- 3) Select a processing mode.
The processing mode can be selected with  or .
See the table on the right.

For adjusting a bevel or groove position



⇒ Select the GUI mode.

For processing an EX lens

⇒ Select the EX mode.

For processing a cataract lens

⇒ Select the GUI mode (rear surface).

Processing type	Processing mode	 setting	 setting
Beveling	Auto	MTL/CEL (ZYL)	AUT
	Guided	MTL/CEL (ZYL)	GUI
	EX	MTL/CEL (ZYL)	EX
Flat edging	Flat (rimless) edging	PNT/NYL	(blank)
	EX lens flat edging	PNT	EX
	Auto grooving (EX Express only)	NYL	AUT
	Guided grooving (EX Express only)	NYL	GUI
	EX grooving (EX Express only)	NYL	EX

For beveling, select the optimum processing mode suited to the lens material.








Processing mode		AUT	GUI				EX
			CRV	FRNT	REAR	RATIO	
Type of lens							
Monofocal lens		◎	◎			○	
Special lenses	Progressive power	◎	◎				
	Bifocal	◎	◎				
	Cataract				◎		○
	EX						◎

◎: Optimum mode



○: Recommended mode

NOTE

- EX lenses cannot be processed in the auto processing mode and guided processing mode.
Process the lens in the EX lens processing mode, checking the bevel position or groove position.
- Cataract lenses cannot be processed in the auto processing mode.
Process the lens in the guided processing mode with the bevel curve profiling the rear surface, checking the bevel position or groove position.
If a cataract lens has a large dilation on its front convex surface, a lens measurement error may occur. In such a case, edge the lens in the EX lens processing mode.

- 4) Specify the lens to be edged, either R (right) or L (left) with .
- 5) Press  to turn ON the polishing mode. (PL4, PLB and PLB-2R only. For Type PL4, this function is available only when flat edging is selected.)
Press  again to cancel the polishing mode.
- 6) Press  to turn ON the SFB mode. (LE-9000EX Express only)
The LED beside  lights up, and  or  is shown on the display panel.






3. As necessary, change the setting of the layout mode.

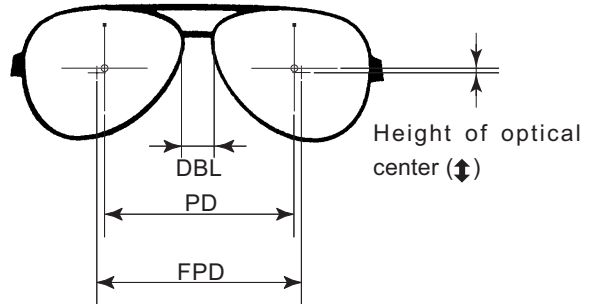
Align the cursor () to the layout mode indication and select the desired mode with . See [ACT (Active mode), BF (Bifocal mode), PAS (Passive mode)] of “A.2 Selection of Blocking” (p. A-2).

4. Input each item of data of the lens layout.

Input values of FPD*⁴, PD and height of the optical center.

- 1) Input the PD value on the prescription.

Align the cursor () to **PD**, with  or  and input a PD value with  or *⁵.



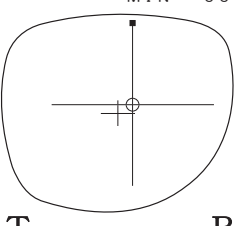
*⁴ It is possible to input DBL.

It is the inputting method of the distance between the nasal ends of the right and left rims.

- 1) Align the cursor to **FPD** and press .
FPD changes to **DBL**.


- 2) Input a DBL value with  or .

DBL	: 1 2.4 0	MIN 66
PD	: 6 2.0 0	
↕	: ↑ 2.0	
S I Z	: 0.0 0	
ACT		
MEM :		
PLA MTLAUT		R



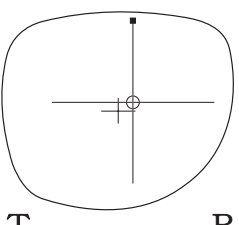
The diagram shows a pair of glasses with a cursor (a small circle with a cross) positioned on the PD value in the display.

*⁵ It is also possible to input PD by monocular PD. It is the inputting method of the bridge center to the eye point distance for the right and left lenses separately.

- 1) Align the cursor to **PD** and press .
PD changes to **1/2PD**.




- 2) Input a monocular PD value with  or .



FPD	: 6 9.0 0	MIN 66
1/2PD	: 3 1.0 0	
↕	: ↑ 2.0	
S I Z	: 0.0 0	
ACT		
MEM :		
PLA MTLAUT		R



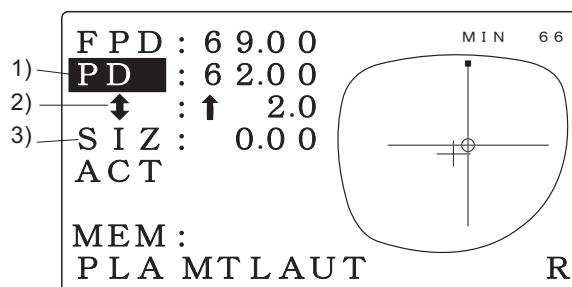
The diagram shows a pair of glasses with a cursor (a small circle with a cross) positioned on the 1/2PD value in the display.

2) Input the height of the optical center.

Align the cursor to  and input the height of the optical center from the rim center with  or .*⁶

3) To correct the finished lens size, align the cursor to **SIZ** and input the corrective value with  or .

e.g. +1.00: The finished size becomes 1 mm larger in diameter.






The minimum lens diameter required for processing is shown on the top right of the display at MIN.

NOTE

- This value is provided just for reference purposes. It is recommended to use a lens which is 2 - 3 mm longer in diameter for cases where the optical center and the center of the lens are not the same.

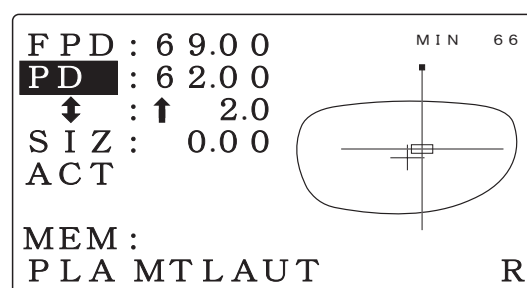
[When the mark of the optical center becomes 

When the layout is input, the mark of the optical center may change from  to .

 indicates that the lens adapter or lens clamp may be in contact with the processing wheels.

Replace the lens adapter, lens clamp and lens cup with the ones for half-eye lenses.



See “4.5.3.1 Processing half-eye lenses” (p. 4-45).



*6 It is also possible to input the height of the optical center from the bottom of the lens outline. See “4.3.2.1 Inputting the height from the lens outline” (p. 4-8).

4.3.2.1 Inputting the height from the lens outline

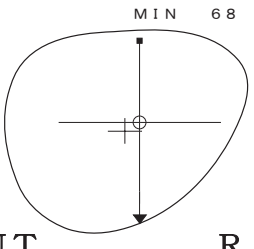
1. Select an inputting form.

Align the cursor to  and select either of the following with .

PD↓ : Height from the optical center straight down to the point on the lens outline.

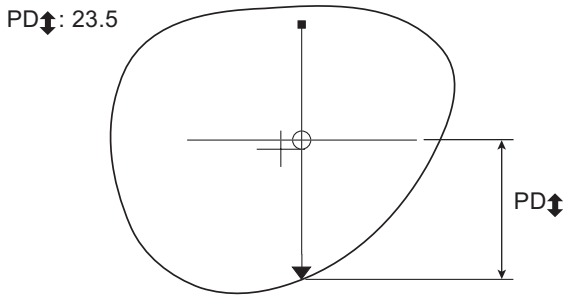
BT↓ : Height from the point level with the optical center straight down to the lowest point on the lens outline.

F P D :	6 9.0 0	MIN	6 8
P D :	6 2.0 0		
P D ↓ :	2 4.0		
S I Z :	0.0 0		
A C T			
MEM :			
P L A M T L A U T			R

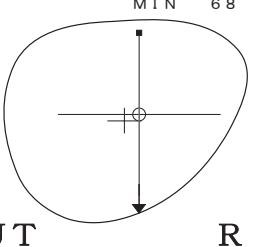


2. Input the height of the optical center.

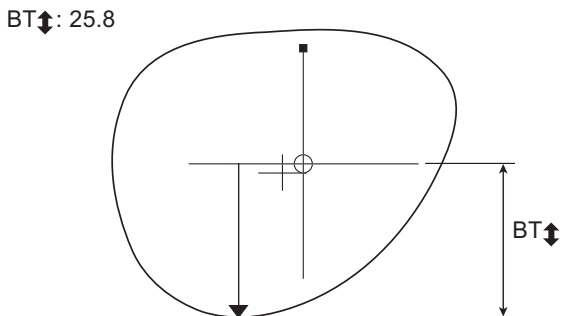
e.g. If the height from the optical center straight down to the point on the outline is 23.5 mm:



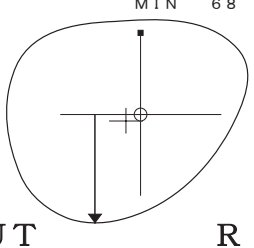
F P D :	6 9.0 0	MIN	6 8
P D :	6 2.0 0		
P D ↓ :	2 3.5		
S I Z :	0.0 0		
A C T			
MEM :			
P L A M T L A U T			R



e.g. If the height from the point level with the optical center straight down to the lowest point of the outline is 25.8 mm:



F P D :	6 9.0 0	MIN	6 8
P D :	6 2.0 0		
B T ↓ :	2 5.8		
S I Z :	0.0 0		
A C T			
MEM :			
P L A M T L A U T			R



4.3.2.2 Layout of bifocal lenses

1. Select processing conditions.

See Step 2 of “4.3.2 Inputting layout data into the LE-9000EX Express/LE-9000DX Express” (p. 4-4).

2. Select **BF** (bifocal) for the layout mode.

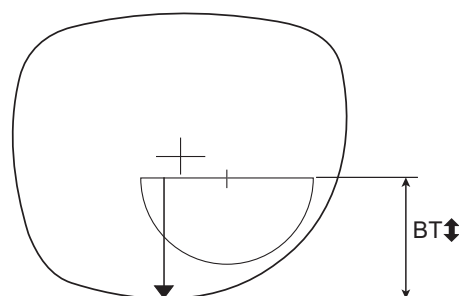
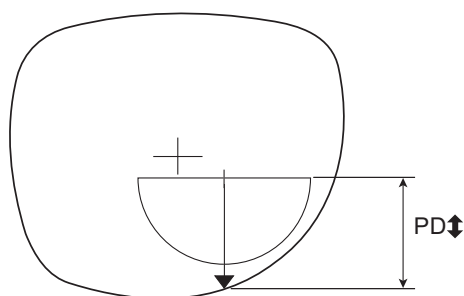
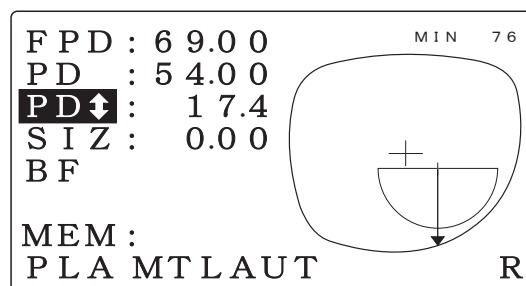
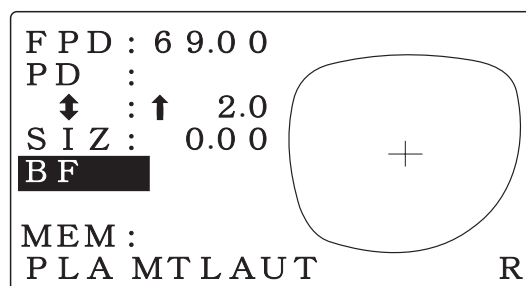
3. Input the prescribed PD for near vision at **PD**.

4. Align the cursor to **↕** and select **PD↕** or **BT↕** with .

5. Input the segment at the center of the top line.

PD↕: Height from the center point on the top line of the segment straight down to the point on the lens outline.

BT↕: Height from the point level with the center of the segment on the top line straight down to the lowest point on the lens outline.



For the blocking procedure, see “4.4.3 Blocking bifocal lenses” (p. 4-14).

4.3.2.3 Layout of progressive power lenses

1. Select processing conditions.

See Step 2 of “4.3.2 Inputting layout data into the LE-9000EX Express/LE-9000DX Express” (p. 4-4).

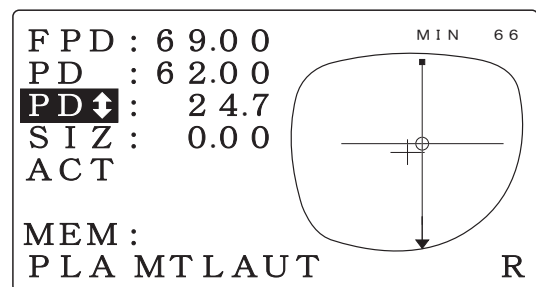
2. Select **ACT (Active) for the layout mode.**

3. Input the prescribed PD at **PD.**

4. Input the height of the eye point marked on the dummy lens.

See “4.3.2.1 Inputting the height from the lens outline” (p. 4-8).

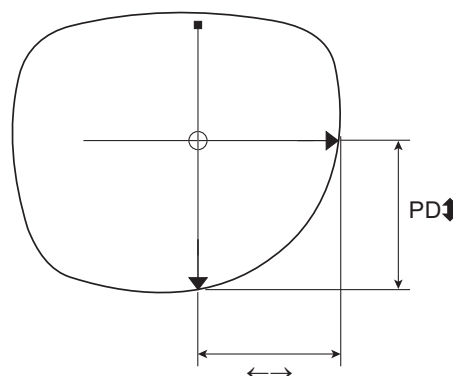
For the blocking procedure, see “4.4.1.1 Blocking progressive power lenses” (p. 4-12).



4.3.2.4 Inputting eye point layout data

This is the form to determine the optical center by inputting the distances to the nasal and bottom sides of the lens outline.

This form serves to specify the position of the eye point, which is marked on dummy lenses, as the optical center.



1. Align the cursor to **FPD** and press twice.

The display changes as shown in the right figure.

The mark “” in the traced outline shows the position of the eye point.

The display with **FPD** will return if is pressed again.

		MIN 65
	:	26.5
PD	:	23.0
SIZ	:	0.00
ACT		
MEM:		
PLA MTLAUT		R

2. Input the distance from the eye point to the point level with it on the nasal side of the lens outline at .

3. Input the height from the eye point straight down to the point on the lens outline at **PD** .

		MIN 70
	:	23.0
PD	:	24.5
SIZ	:	0.00
ACT		
MEM:		
PLA MTLAUT		R

4.4 Blocking Lenses

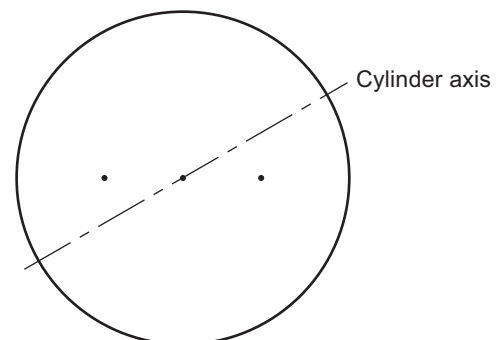
The blocking position of the suction cup varies with the layout mode (Active mode, Bifocal mode, Passive mode).

4.4.1 Blocking in active mode

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

When a lens has cylinder power, align the cylinder axis angle of the lens to the prescription value before marking.

It is recommended to use the NIDEK Auto lensmeter for this purpose.

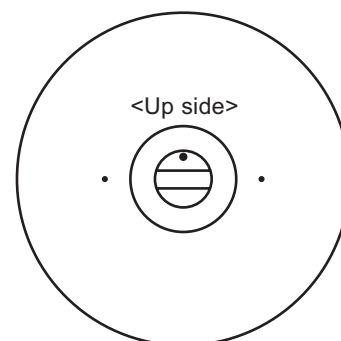


2. Block the convex surface of the lens with a suction cup.

The cup has the blocking direction as shown with the top mark.

Be careful not to block the wrong side up, especially for dual-tone colored lenses.

It is recommended to use the NIDEK centering device Model CE-1 for blocking.

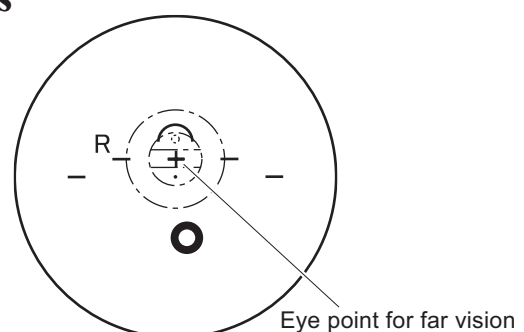


NOTE

- For blocking a polycarbonate lens, be sure to use a lens cup in order to prevent the cup from moving during processing.

4.4.1.1 Blocking progressive power lenses

Block a lens with a centering device on the eye point for far vision, which is printed on the lens.



4.4.2 Blocking in passive mode

This is the procedure to block at the rim center by decentering the optical center.

When PAS \updownarrow (Passive) is selected for the layout mode, how much and in what direction the optical center should be decentered appears at PAS $\leftrightarrow \updownarrow$ after lens layout is finished.

The on-the-frame-center blocking can be achieved by decentering the optical center as indicated.

FPD :	6 4.0 0	
PD :	6 0.0 0	
\updownarrow :	\downarrow 5.0	
SIZ :	0.0 0	
PAS \leftrightarrow :	\rightarrow 2.0	
\updownarrow :	\downarrow 5 0.	
MEM :	PLA MTLAUT	R

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

See Step 1 of “4.4.1 Blocking in active mode” (p. 4-12).

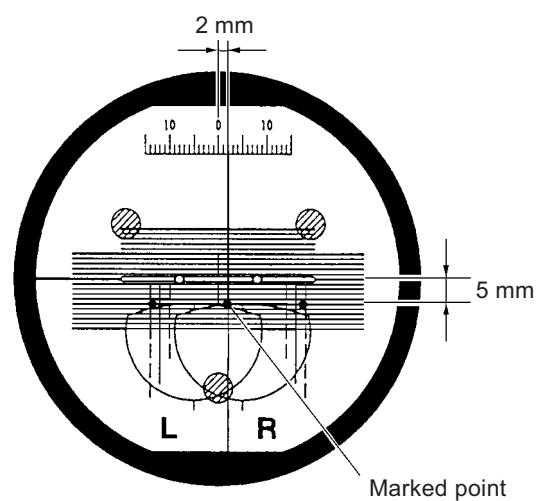
2. Block the convex surface of the lens with a suction cup.

Decenter the optical center in accordance with the indication at PAS $\leftrightarrow \updownarrow$.

e.g. PAS \leftrightarrow : \rightarrow 2.0

\updownarrow : \rightarrow 5.0

Decenter the optical center 2.0 mm to the right and 5.0 mm to the bottom to block.



<When using the NIDEK centering device CE-1>

NOTE

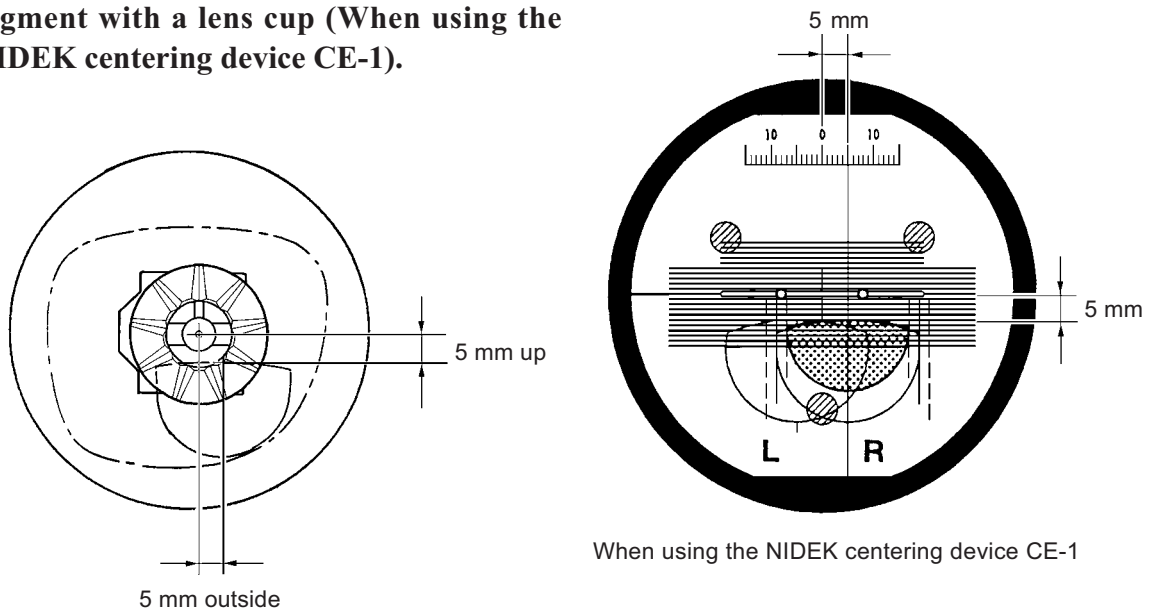
- For blocking a polycarbonate lens, be sure to use a lens cup in order to prevent the cup from moving during processing.

4.4.3 Blocking bifocal lenses

When BF (bifocal) is selected for the layout mode, a lens is blocked at the specified value UP and OUT position from the top line center of the segment.

Be sure to block the lens as instructed below since the edger processes the lens with the specified values. See “4.3.2.2 Layout of bifocal lenses” (p. 4-9).

Block a lens at the position 5 mm above and 5 mm outside from the top line center of the segment with a lens cup (When using the NIDEK centering device CE-1).



When using the NIDEK centering device CE-1



NOTE

- The edger is factory-configured so that a lens is blocked at the position 5 mm above and 5 mm outside from the top line center of the segment with the NIDEK centering device CE-1. (The provided layout mark of the segment on the screen of the CE-1 allows an operator to easily block a lens at 5 mm up and 5 mm outside.) When using the centering device of another manufacturer, it is possible to specify appropriate values to the device. See “5.2 Parameter Settings (p. 5-2)”.

4.5 Processings

The processing mode is specified with  and .

See Step 2 of “4.3.2 Inputting layout data into the LE-9000EX Express/LE-9000DX Express” (p. 4-4).

Processing mode		 setting	 setting
Beveling	Auto processing mode (see p. 4-17)	MTL/CEL (ZYL)	AUT
	Guided processing mode (see p. 4-20)	MTL/CEL (ZYL)	GUI
	EX lens processing mode (see p. 4-27)	MTL/CEL (ZYL)	EX
Flat edging	Flat (rimless) edging mode (see p. 4-31)	PNT/NYL	(blank)
	EX lens flat (rimless) edging mode (see p. 4-34)	PNT	EX
	Auto grooving mode (see p. 4-36) (LE-9000EX Express only)	NYL	AUT
	Guided grooving mode (see p. 4-38) (LE-9000EX Express only)	NYL	GUI
	EX lens grooving mode (see p. 4-42) (LE-9000EX Express only)	NYL	EX

To turn ON the SFB mode, press . (LE-9000EX Express only)

In addition, the edge will be polished by pressing  for Type PL4, PLB, or PLB-2R. (This function is available only for flat edging of Type PL4.)

4.5.1 Beveling

For beveling, select the optimum processing mode suited to the lens material.

Processing mode		AUT	GUI				EX
			CRV	FRNT	REAR	RATIO	
Type of lens							
	Monofocal lens	◎	◎			○*7	
Special lenses	Progressive power	◎	◎				
	Bifocal	◎	◎				
	Cataract				◎		○
	EX						◎

◎: Optimum mode, ○: Recommended mode

*7 Specify the ratio, following the reference ratios below.

- Low power plus monofocal lens ⇒ 5 : 5
- Middle and high power plus monofocal lens, Low power minus monofocal lens ⇒ 4 : 6 or 5 : 5
- Medium power minus monofocal lens ⇒ 3 : 7 or 4 : 6
- High power minus monofocal lens ⇒ 3 : 7



NOTE

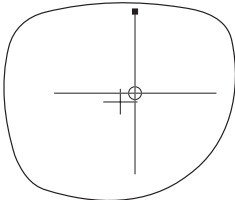

- EX lenses cannot be processed in the auto processing mode and guided processing mode. Process an EX lens in the EX lens processing mode. See “4.5.1.4 EX lens processing mode” (p. 4-27).
- Cataract lenses cannot be processed in the auto processing mode. Process a cataract lens with the bevel curve profiling the rear surface in the guided processing mode. See “4.5.1.2 Guided processing mode” (p. 4-20).
If a cataract lens has a large dilation on its front convex surface, a lens measurement error may occur. In such a case, edge the lens in the EX lens processing mode.

4.5.1.1 Auto processing mode


In this mode, a computer-calculated bevel is produced on the lens edge.

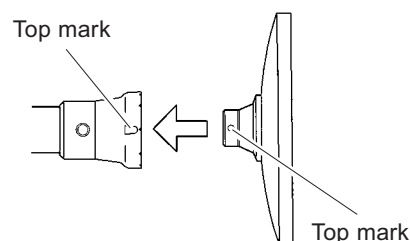
1. Check the processing conditions.

-  : MTL or CEL (ZYL)
-  : AUT

FPD : 6 9.0 0	
PD : 6 2.0 0	
 : ↑ 2.0	
SIZ : 0.0 0	
ACT	
MEM :	
PLA MTLAUT	R

2. Set a lens to the adapter in the processing unit.

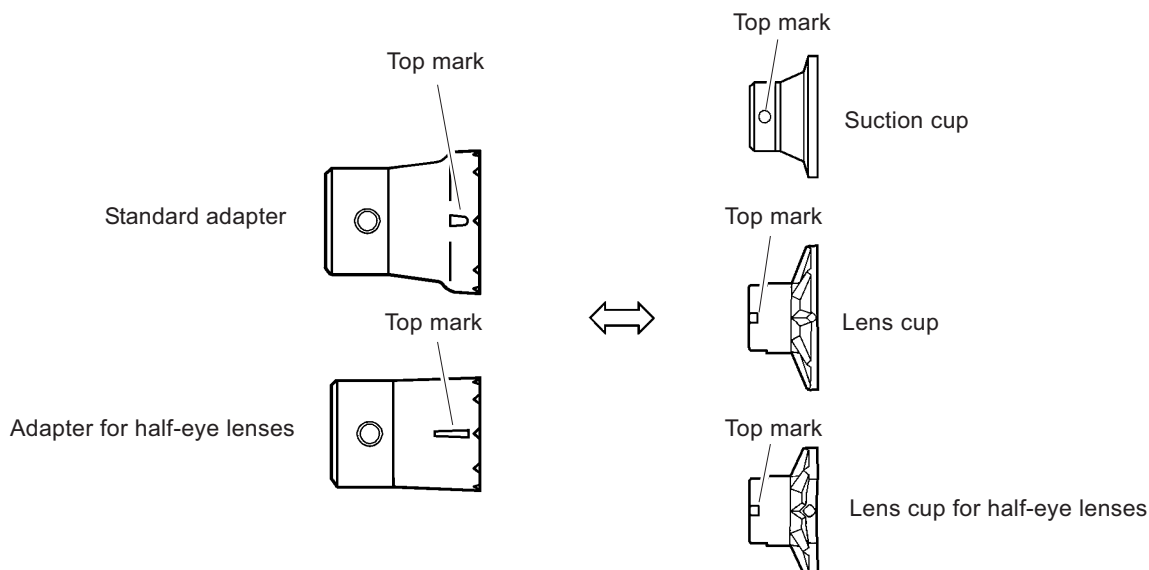
Align the top mark (•) on the suction cup with that of the adapter and insert the suction cup firmly. Then, press  to fix the lens.



NOTE

- To attach a suction cup or lens cup to the adapter, align the top mark of the cup with the mark on the adapter and fully insert the cup.
If not, correct processing cannot be done. As for the lens cup, if the cup attached to the adapter is upside down, the cup cannot be held securely by the adapter.

[Positions of the top mark]



⚠ CAUTION

- Be careful not to get your fingers caught when chucking (fixing) a lens.

3. Close the soundproof cover.

Processing does not start even if  is pressed unless the soundproof cover is closed.

⚠ WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.

4. Start processing.

Press .

① Lens shape measurement

② Roughing

[The screen changes to the Bevel simulation screen.]

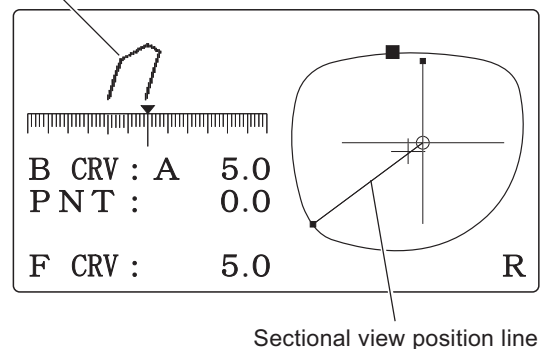
③ Finishing

④ Polishing (Only when  is selected by Type PLB or PLB-2R.)

⑤ Chamfering (Only when  is selected.)(LE-9000EX Express only)

⑥ Processings are complete. [The Layout screen returns.]

Bevel section





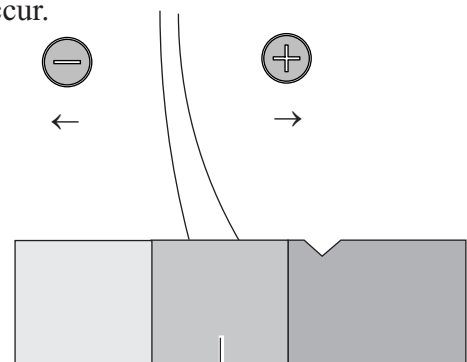
When the screen changes to the Bevel simulation screen in Step ②, the sectional view position line rotates along the traced outline, and the bevel section at that position will be shown.

A. The glass lens contact position during roughing can be moved laterally (except for Type PLB).

By changing the position where the glass lens contacts the roughing wheel, the partial wear of the roughing wheel for glass lenses will be unlikely to occur.

To adjust the contact position, press  or  during roughing.

-  : The contact position with the wheel will shift to the right.
-  : The contact position with the wheel will shift to the left.



Roughing wheel for glass lenses



NOTE

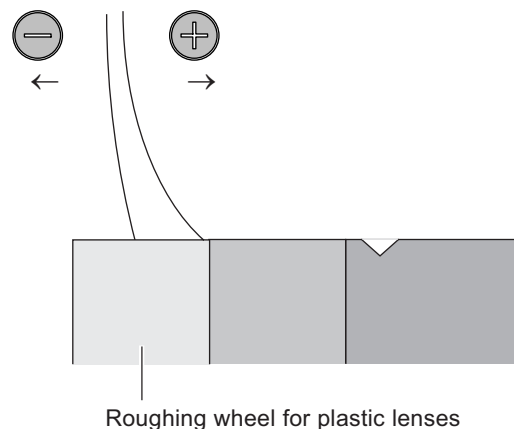
- Be sure to move a glass lens within the roughing wheel for glass lenses.
If the glass lens contacts the other wheels, it may damage the wheels or the glass lens may crack.
- The adjusted contact position with the wheel is effective only during the roughing of one lens. After the lens processing is over, the contact position with the wheel will return to its original position.
- Setting the “Reverse GLS Grind” parameter to “Exec” roughly edges a lens by automatically changing the position to be contacted with the roughing wheel from side to side.

B. It is possible to adjust the plastic lens contact position laterally during roughing.

If a sharply-warped or high minus plastic lens is detached from the roughing wheel, change the position where the plastic lens contacts the roughing wheel.

To adjust the contact position, press  or  during roughing.


-  : The contact position with the wheel will shift to the right.
-  : The contact position with the wheel will shift to the left.




NOTE

- The adjusted contact position with the wheel is effective only during roughing of one lens. After the lens processing is over, the contact position with the wheel will return to the original position.

5. Remove the finished lens.

- 1) Open the soundproof cover.
- 2) Press  and remove the lens.



! WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

4.5.1.2 Guided processing mode

This is a mode to input the value of the bevel curve and bevel position.

1. Check the processing conditions.

 : MTL or CEL (ZYL)
 : GUI

2. Set a lens to the adapter in the processing unit.

See Step 2 of “4.5.1.1 Auto processing mode”.

3. Close the soundproof cover.

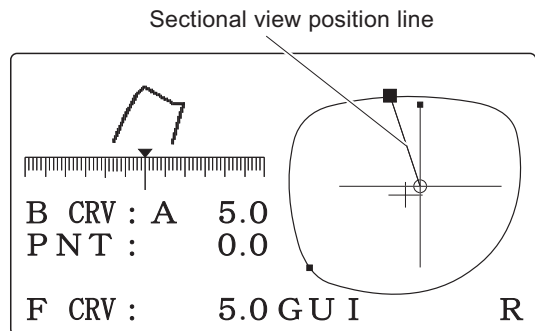
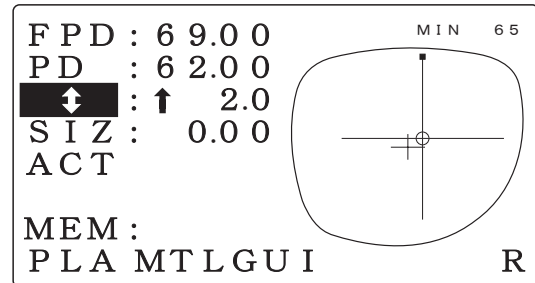
Processing does not start even if  is pressed unless the soundproof cover is closed.

! WARNING





- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.


4. Press .

- ① Lens shape measurement
↓
- ② The screen changes to the Bevel Simulation screen and the instrument stops.



5. Simulate the bevel section at each point of the traced outline on the screen.



-  : The sectional view position line rotates clockwise.
 : The sectional view position line rotates counterclockwise.
 To stop the line movement, press  or  again.

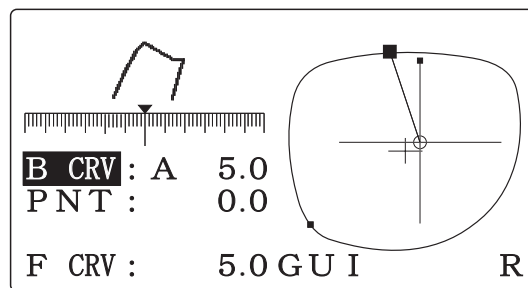
 : The sectional view position line jumps to the point where the lens edge is thinnest (■) and thickest (■) alternately.

6. Adjust the bevel position.

(a) Changing the bevel position only at the part where the edge is thick

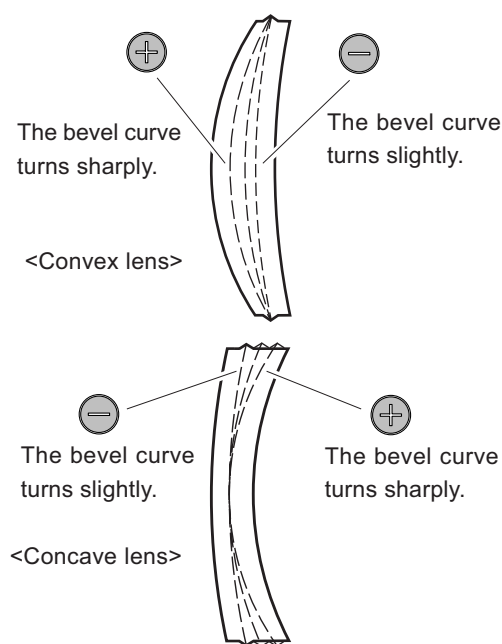
- 1) Align the cursor to **BCRV**.
- 2) Change the bevel curve value to move the bevel position toward the front or rear surface of the lens.


-  : The bevel curve turns sharply.
-  : The bevel curve turns slightly.

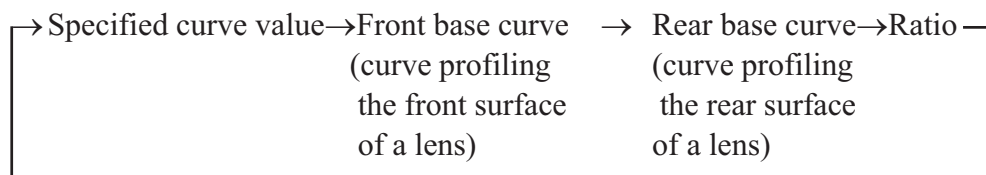


As the curve value is changed, the bevel position moves from the edge's thinnest point as the base (The ratio 5:5 will be maintained). The shifted amount of the bevel is maximum at the lens edge's thickest point. Change the bevel curve, watching the bevel sectional view at the lens edge's thickest point.

The curve value with the "A" mark on the head shows that it is a computer-calculated value. This value produces the same bevel curve that is processed in the auto processing mode.




 : The curve of the front base curve (FRNT), rear base curve (REAR), or ratio will be selected.



NOTE

- The curve value can only be selected within a range where the bevel is on the lens edge. Therefore, the bevel will never be off the edge, and a single-sided bevel will never be produced even if the bevel curve value is changed.
- When processing a cataract lens, select the rear base curve (REAR) for the curve value. The specified value, front base curve, or Ratio is not appropriate for the lens to process the bevel properly.


(b) Changing the position of the whole bevel parallel to itself

1) Press  to simulate the bevel at the point where the edge is thinnest (■).

2) Align the cursor to **PNT**.

3) Change the bevel tip point value to move the bevel position toward the front or rear surface of the lens.

 : The bevel moves toward the front surface.

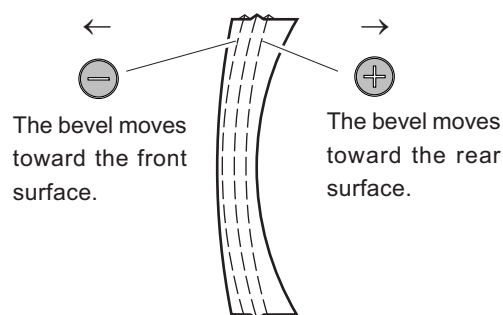
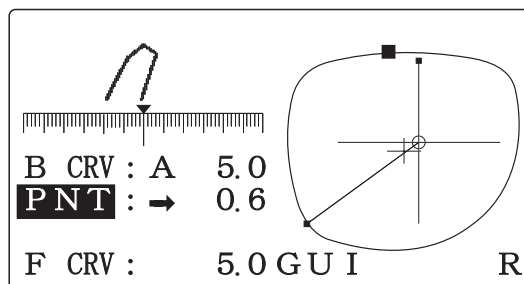
 : The bevel moves toward the rear surface.

← next to the value shows that the bevel was moved toward the front surface. → next to the value shows that the bevel was moved toward the rear surface.

e.g. B CRV: A5.0


PNT : → 0.6

This shows that the bevel was moved 0.6 mm toward the rear surface parallel to itself while the bevel curve value was 5.0.

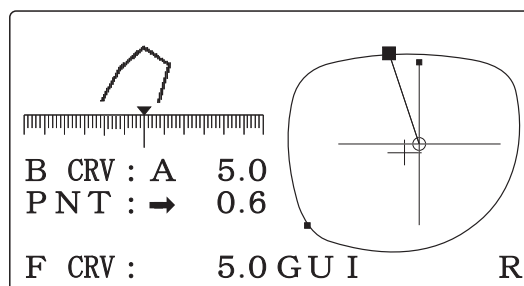
**NOTE**

- In order to avoid the bevel being off the lens edge, be sure to watch the simulation at the thinnest position while changing the value.
Distinct from changing the bevel curve value, it is possible to specify a bevel tip point which produces a single-sided bevel.

7. Check the bevel section.

1) Press  to turn off the cursor.

2) Simulate the whole bevel to see if the desired bevel is obtained. See Step 5 (p. 4-20).

**8. Repeat Steps 5 - 7 until the desired bevel is obtained.**

9. Start processing.

Press .

③ Roughing



④ Finishing



⑤ Polishing (Only when  is selected by Type PLB or PLB-2R.)




⑥ Chamfering (Only when  is selected.)(LE-9000EX Express only)







⑦ Processings are complete. [The Layout screen returns.]

10. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

- It is also possible to switch the processing mode to the guided processing mode even in the middle of auto processing.
To do so, press  while the roughing is being processed.
After roughing is completed, the instrument goes into the guided processing mode and stops temporarily.
- While the Simulation screen is presented, it can be changed to the Layout screen by pressing . The Layout screen here, however, is just a reminder and its data cannot be changed. (The switches except for  do not function.)
Pressing  again will return to the Simulation screen, but once processing has started, the screen cannot be changed any more.

4.5.1.3 Guided processing mode (tilting function)

The tilting function of the bevel is available in the guided processing mode, in which the bevel curve can be specified manually.



If the difference in width between the edge's thickest point and thinnest point is extreme, the mounted lens will not look nice. The appearance of the lens will improve if the bevel is tilted. To use the tilting function, set the "TILT Function" parameter to "Exec". See "5.2 Parameter Settings" (p.5-2).

1. Select processing conditions, chuck a lens, and measure the lens shape.

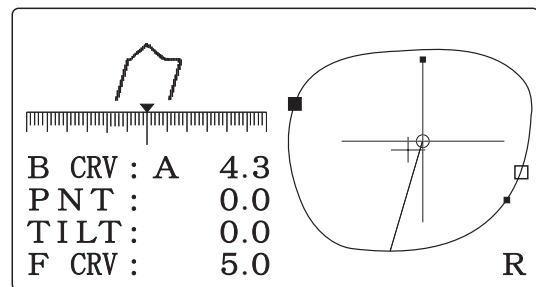
After the lens shape measurement, the screen changes to the Simulation screen, and the instrument stops.

See Steps 1 - 5 of "4.5.1.2 Guided processing mode" (p. 4-20).


2. Adjust the bevel position.


- 1) Press  or  to move the sectional view position line to the base position and check the bevel sectional view at that point.

The most appropriate tilt base position is the thinnest point of the lens edge, or a diagonally-opposite point (through the frame center) to where the bevel tip point is to be moved.

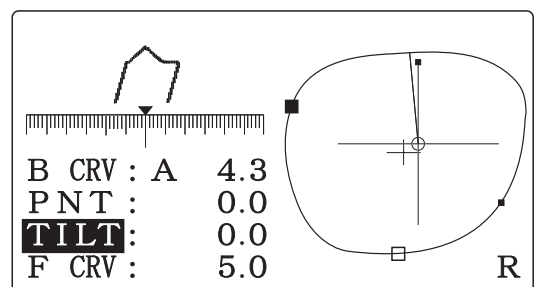


























- 2) Align the cursor to **TILT** with  or  and press  to determine the tilt base position.

The tilt base position mark () will move to the end of the sectional view position line. After that, the line will automatically skip to the diagonally-opposite point.

When the value is already input at "TILT", pressing  resets the value to 0.0.

In this case, press  again to set the tilt base position.




- 3) Align the cursor to **BCRV** with  or , and set the bevel curve value with  or . Press  or  once to delete A (Auto-curve), and then set the desired value.
e.g.) A4.3: A bevel position is computer-calculated from the ratio.
4.3: A bevel position is calculated from the spherical curve of the lens.
For a curve value with A, the bevel position is calculated from Ratio. For a curve value without A, the bevel position is calculated from the spherical curve of the lens.
With the tilting function, the bevel position is adjusted according to the spherical curve value of the lens as a base. For the reason, if the ratio curve value with A is set, the set tilting value may differ from the actual tilting amount of the bevel. As the difference between the ratio curve and spherical curve becomes wide, the difference in the tilting amount will more substantially increase.
- 4) As necessary, align the cursor to **PNT** with  or , and adjust the bevel position with  or .
 ⇒ The whole bevel moves toward the rear surface parallel to itself.
 ⇒ The whole bevel moves toward the front surface parallel to itself.
← next to the value shows that the bevel was moved forward.
→ next to the value shows that the bevel was moved backward.
- 5) Align the cursor to **TILT** with  or , and set the tilting amount with  or .
“TILT” shows the amount of tilting of the bevel tip point at the diagonally-opposite point to the tilt base position.
 ⇒ The bevel moves toward the rear surface.
 ⇒ The bevel moves toward the front surface.
+ next to the value shows that the bevel was moved backward.
– next to the value shows that the bevel was moved forward.
- 6) Simulate the whole bevel to see if the desired bevel is obtained.
Delete the cursor with  or , and check the bevel sectional view, by rotating the bevel sectional view position line with  or .
Pressing  will move the sectional view position line to:
⇒ Tilt base position (□) ⇒ Diagonally-opposite point to the tilt base position ⇒
Edge’s thinnest point (■) ⇒ Edge’s thickest point (■) in order.
- 7) Repeat Steps 3) to 6) until the desired bevel is obtained.
Press  to disable the set values for the bevel and to stop the instrument. All the set values will be canceled, and the Layout screen will return.

3. Restart processing.

Press  to restart processing.

If the bevel is completely off the lens edge, two short beeps will sound. The sectional view position line automatically rotates along the whole traced outline and the bevel section at each position will be shown.


Change the setting as necessary. To process the lens without changing the setting, press  again.

This function works when more than half of the bevel is off the lens edge.

After roughing and finishing, processing sequences are over. The Layout screen returns.

4. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.

If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

5. When subsequently processing the other lens by switching R or L, the former setting for the lens will be shown on the screen.

If one lens is processed with the tilting function, the Bevel simulation screen will automatically appear after the other lens is edged by switching R or L. The former values such as the tilt base position, amount of tilting bevel, bevel curve and bevel tip point are initially displayed.

NOTE

- If the front base curve (FRNT), rear base curve (REAR) or Ratio is selected as the bevel curve, the amount of bevel tilting will be ignored. The lens will be processed in the normal guided processing mode.
- With the tilting function, the bevel curve will be calculated from the spherical curve of the lens. For the reason, the bevel may be off the edge even though the closer value to the auto-curve value is set.
- If the lens is edged with the bevel curve value with A on condition that the “Tilt Function” parameter is set at “Exec”, the parameter setting will be ineffective, and the bevel tilting function does not work.

4.5.1.4 EX lens processing mode



This mode serves to process EX lenses. In this mode, the beveling which has the curve profiling the rear surface is performed.

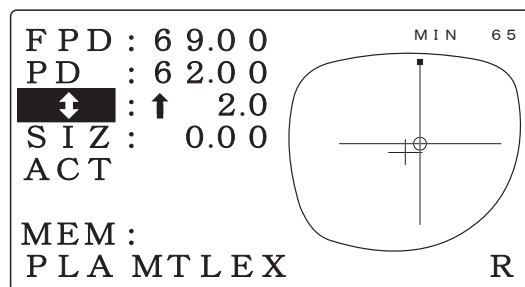
As for a cataract lens which has a large dilation on its front convex surface, edge a lens in the EX lens edging mode if the lens processing cannot be performed in the guided processing mode (rear base curve) due to a lens shape measurement error.

NOTE

- Use a lens cup for blocking.
A suction cup cannot hold the convex surface of a lens securely enough. The cup may move during blocking.

1. Check the processing conditions.

 : MTL or CEL (ZYL)
 : EX



2. Set a lens to the adapter in the processing unit.

See Step 2 of “4.5.1.1 Auto processing mode”.

3. Close the soundproof cover.

Processing does not start even if  is pressed unless the soundproof cover is closed.

WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.








4. Press .

① Lens shape measurement



② The screen changes to the Bevel simulation screen and the instrument stops.

5. Simulate the bevel section at each point of the outline on the screen.

- : The sectional view position line rotates clockwise.
- : The sectional view position line rotates counterclockwise.
To stop the line movement, press  or  again.
- : The sectional view position line jumps to the point that the lens edge is thinnest () and thickest () alternately.

If the bevel position needs to be changed;



Follow the procedures from Step 6 - of “4.5.1.2 Guided processing mode” (p. 4-21) to change the bevel tip point (PNT).

NOTE

- As for the curve value, do not change it but leave it as the rear base curve (REAR).
The specified curve, front base curve or Ratio is not appropriate for an EX lens to process the bevel properly.


6. Start processing.

Press .

- ③ Rough processing
- ↓
- ④ Finishing
- ↓
- ⑤ Polishing (Only when  is selected by Type PLB or PLB-2R.)
- ↓
- ⑥ Chamfering (Only when  is selected.)(LE-9000EX Express only)
- ↓
- ⑦ Processings are complete. [The Layout screen returns.]

7. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

○ Concrete example of the tilting function

The procedures of processing EX lenses with the tilting function are described.

To use the tilting function, it is necessary to set the “TILT Function” parameter to “Exec”. See “5.2 Parameter Settings” (p. 5-2).

EX lenses have the distance part on their upper half and the near part on their lower half as in the figure, and the difference between the top edge width and the bottom one is wide. In addition, since there is a difference in level between the distance part and near part, the appearance of the mounted lenses is not nice if the lens is processed in the beveling mode.

In processing an EX lens with the tilting function, the initial bevel curve value will not be the rear base curve (REAR). The bevel is calculated from the spherical curve which is the same with the auto-curve value. Then the EX lens will automatically be processed in the guided processing mode.


The figure by the dotted line illustrates the side view of the EX lens which is processed with the tilting function. As illustrated, the bevel on the thick upper part of the lens is moved toward the front surface of the lens in the range that the bevel barely remains at the edge's thinnest point.

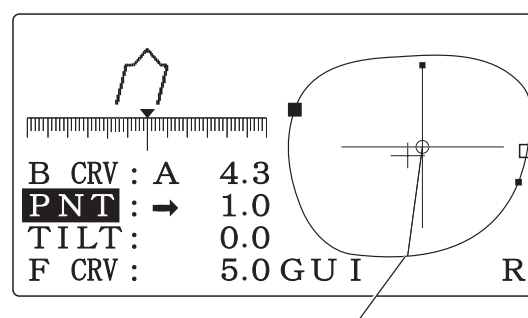
The following describes the procedures for processing an EX lens with a nice appearance by adjusting the bevel position on the upper part to the front surface with the tilting function.



Figure of EX lens

① Setting the tilt base position

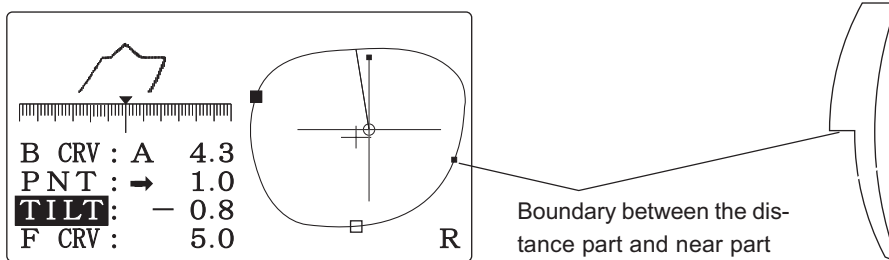
Align the sectional view position line to the position adjacent to the point straight down from the frame center as shown on the right. Then move the bevel position backward as much as possible. This is for tilting the bevel on the upper edge as much as possible. If a lens has an enough width, it is not necessary to move the bevel position, but leave the bevel at around the middle of the edge. The bevel position will be the tilt base position. Align the cursor to **TILT** and press .



Set the tilt base position near the point straight down from the frame center.

② Inputting a tilting amount

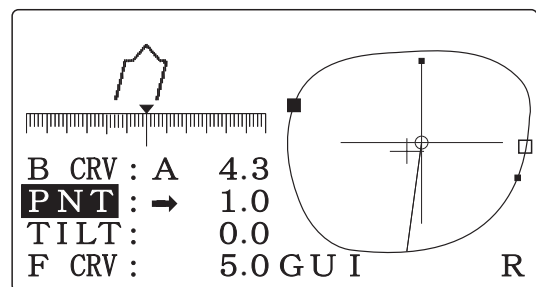
The bevel position has been moved backward in Step ① though the upper part of the edge is thick. Move the bevel forward by inputting a minus value to “TILT”. In doing so, always observe the bevel on the boundary between the distance and near parts. In most cases, the edge’s thinnest point is on the boundary. Adjust the tilting amount within a range that at least a bevel on either the front or rear side remains.



See the following in adjusting the bevel position at each point. To reset all the settings, reset “TILT” and “PNT” to 0.0, and put “A (automatically-calculated curve value)” at the head of the curve value. This will allow an operator to reset the bevel position and tilting amount from the beginning.

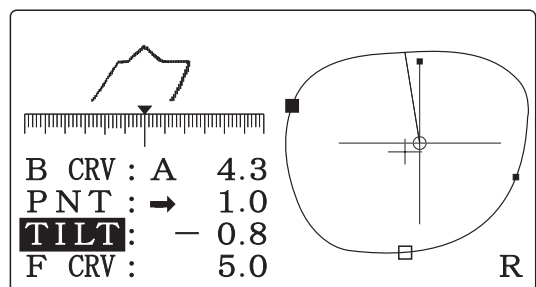
Position adjacent to the point straight down from the frame center (Tilt base position)

- If the lens edge is thin, change the bevel tip point (PNT) to move the bevel backward as much as possible.
- If the lens has enough width, place the bevel tip point at 1/3 from the rear surface of the edge.
- Do not input the tilting amount, and leave “TILT” 0.0.



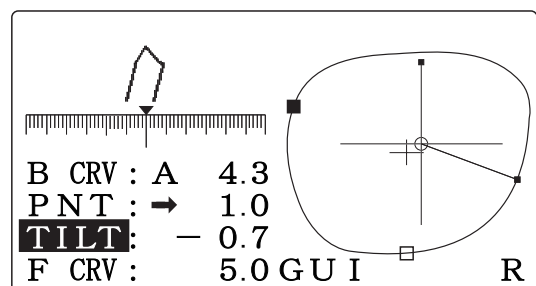
Upper position (diagonally-opposite point to the tilt base point)

- Move the bevel position forward as much as possible in the range that the bevel on the edge’s thinnest point remains on the edge.
- Increase the tilting amount (TILT) in the minus direction to tilt the bevel toward the front surface.



Edge’s thinnest position (on the boundary between the distance part and near part)

- Move the bevel position on the upper part forward, observing that the bevel tip point at the edge’s thinnest point remains on the edge.
- Set such a tilting amount (TILT) so that the tip of the bevel barely remains.



4.5.2 Flat (rimless) edging

With the LE-9000DX Express, only flat edging is available. With the LE-9000EX Express, grooving which makes a groove for nylon frames after flat edging is also available.

The EX lens flat edging mode is also available for EX lenses in normal flat edging.

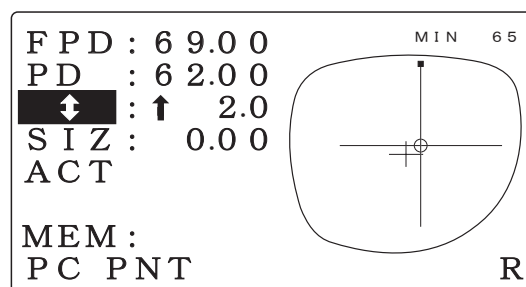
For grooving, the auto grooving mode in which groove position and curve are calculated from measured data of a lens, the guided grooving mode in which data is manually input, and the EX lens grooving mode for grooving EX lenses are available.

4.5.2.1 Flat (rimless) edging mode

1. Check the processing conditions.

 : PNT*⁸ or NYL

 : (Blank)



2. Set a lens to the adapter in the processing unit.

See Step 2 of “4.5.1.1 Auto processing mode”.

3. Close the soundproof cover.

Processing does not start even if  is pressed unless the soundproof cover is closed.

WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.

4. Start processing.

Press .

① Lens shape measurement*⁹



② Roughing



*8 When PNT (two-point) is selected, FPD will be automatically corrected.

Auto-correction of FPD is the function which changes the FPD value in accordance with the changed size value.

*9 “① Lens shape measurement” will not be performed if the “Measure in flat edge” parameter is set to “None”. See “5.2 Parameter Settings” (p. 5-2). However, the lens shape measurement will be performed regardless of the setting if grooving and chamfering are performed.

③ Finishing



④ Polishing (Only when  is selected by Type PL4, PLB, or PLB-2R.)



⑤ Chamfering (Only when  is selected.)(LE-9000EX Express only)




⑥ Processings are complete. [The Layout screen returns.]

* The processing order may change according to the lens material.

5. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.


NOTE

- When a lens, which is difficult to process or whose edge is thick, is polished, a part of the edge may remain unpolished.
In such a case, retouch the lens without changing the size compensation value. See “4.6.2 Retouching lenses” (p. 4-53).

[Addition of grooving](LE-9000EX Express only)

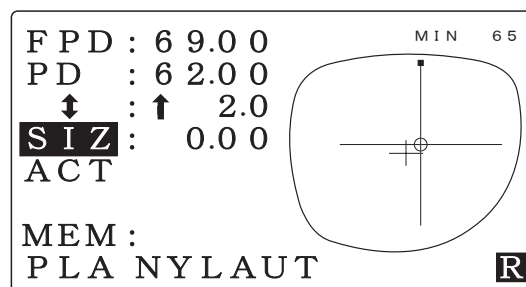
When the “To add safety bevel” parameter is set to “Exec”, grooving can be additionally performed (except for glass lenses) after the flat edging with the frame setting “NYL”.

However, as well as retouching, this cannot be performed such as when removing the suction cup, switching R/L, or reading other frame data.

1) Select “AUT” or “GUI” with .

2) Set a lens to the adapter in the processing unit.

Align the top mark (•) on the suction cup with that of the adapter and insert the suction cup firmly.




3) Press  or .


 ⇒ Grooving is performed.

 ⇒ After retouching, grooving is performed.

If “GUI” has been selected in Step 1), the screen will change to the Simulation screen and stop temporarily. Check the groove section and adjust the depth and width, etc. as necessary.

Then, press  to start grooving. See “4.5.2.4 Guided grooving mode”.

NOTE

- If grooving has been performed in the first processing, retouching of the groove can be performed by the same procedure. If “GUI” is selected, any items on the Simulation screen can be changed for additional grooving. If the groove which has been already made is retouched, however, only the depth and width can be changed to a larger size.
- If the **SIZ** value is changed with , additional grooving and retouching of the groove cannot be performed.

4.5.2.2 EX lens flat (rimless) edging mode


This is a mode to make lens shape measurement of the front surface and to achieve flat edging of EX lenses with higher accuracy. (In the normal flat edging mode, the lens shape measurement of EX lenses cannot be made.)

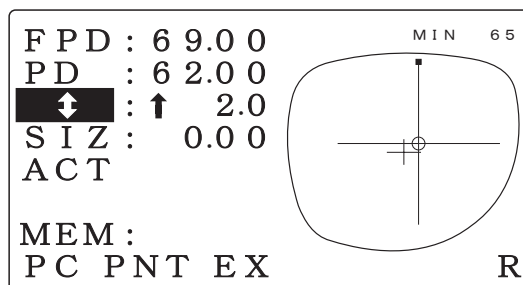
Especially, this mode is effective when polishing is selected to obtain polishing with high accuracy.

NOTE

- Use a lens cup for blocking.
A suction cup cannot hold the convex surface of an EX lens securely enough. It may move during blocking.

1. Check the processing conditions.

 : PNT
 : EX



2. Set a lens to the adapter in the processing unit.

See Step 2 of "4.6.1.1 Auto processing mode".

3. Close the soundproof cover.



Processing does not start even if  is pressed unless the soundproof cover is closed.

WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.

4. Start processing.


Press .

- ① Lens shape measurement
↓
- ② Roughing
↓
- ③ Finishing
↓
- ④ Polishing (Only when  is selected by Type PL4, PLB, or PLB-2R.)
↓
- ⑤ Chamfering (Only when  is selected.)
↓
- ⑥ Processings are complete. [The Layout screen returns.]

* The processing order may change according to the lens material.

5. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.


If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.


NOTE

- When a lens, which is difficult to process or whose edge is thick, is polished, a part of the edge may remain unpolished.
In such a case, retouch the lens without changing the size compensation value. See “4.6.2 Retouching lenses” (p. 4-53).

NOTE


- If the thinnest lens edge is less than the default, grooving is not performed. At that time, the message “Lacked lens thickness” will appear after the lens shape measurement, and then the instrument stops.

Pressing  goes to the Groove simulation screen. See Step 5 of “4.5.2.4 Guided grooving mode” (p. 4-39).

Pressing  stops processing. Processing can be performed in the flat edging mode by setting the mode blank.

5. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.

If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

NOTE

- When a lens, which is difficult to process or whose edge is thick, is polished, a part of the edge may remain unpolished.

In such cases, retouch the lens without changing the size compensation value. See “4.6.2 Retouching lenses” (p. 4-53).

4.5.2.4 Guided grooving mode (LE-9000EX Express only)

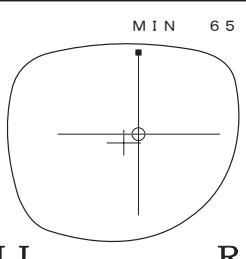


This is a mode to make a groove for nylon frames at the position and curve input manually after flat edging.

NOTE

- In grooving mode, glass lenses cannot be processed.

1. Check the processing conditions.

 : NYL
 : GUI

F P D : 6 9.0 0	
P D : 6 2.0 0	
 :  2.0	
S I Z : 0.0 0	
A C T	
MEM :	
P L A N Y L G U I	R

2. Set a lens to the adapter in the processing unit.

See Step 2 of “4.5.1.1 Auto processing mode”.

3. Close the soundproof cover.

Processing does not start even if  is pressed unless the soundproof cover is closed.

WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
 If the soundproof cover is opened during processing, the instrument does not stop.
 Spray including processing waste may cause eye damage.

4. Start processing.


① Lens shape measurement




② The screen changes to the Groove simulation screen and the instrument stops.





NOTE

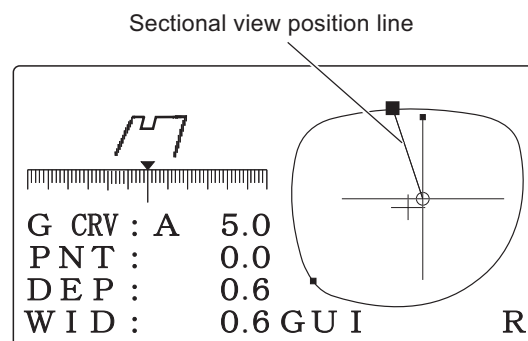
- If the thinnest lens edge is less than the default, grooving is not performed. At that time, the “Lacked lens thickness” message will appear after the lens shape measurement, and then the instrument stops.


 Pressing  goes to the Groove simulation screen. See Step 5 on page 4-39.

 Pressing  stops processing. Processing can be performed in the flat edging mode by setting the mode blank.

5. Simulate the groove section at each point of the outline on the screen.

- : The sectional view position line rotates clockwise.
 - : The sectional view position line rotates counterclockwise.
- To stop the line movement, press  or  again.

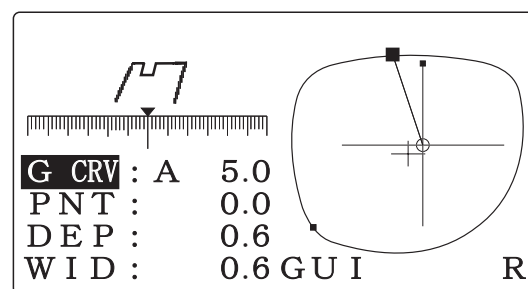


- : The sectional view position line jumps to the point that the lens edge is thinnest (■) and thickest (■) alternately.



6. Adjust the groove position.

(a) Changing the groove position only at the part where the edge is thick

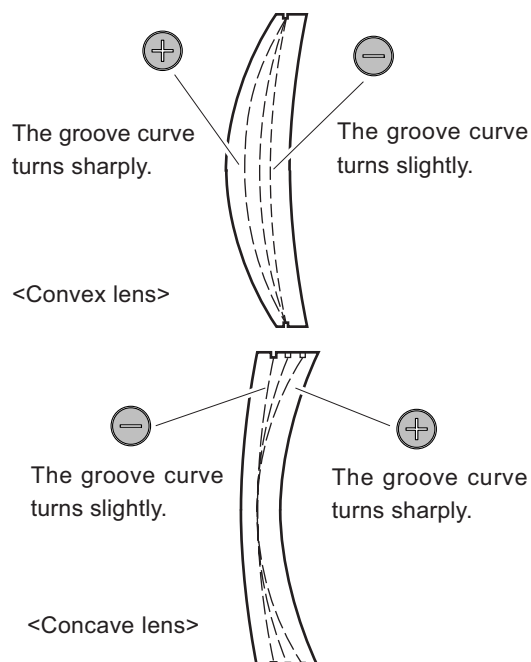
- 1) Align the cursor to **G CRV**.



- 2) Change the groove curve value to move the groove position toward the front or rear surface of the lens.

- : The groove curve turns sharply.
- : The groove curve turns slightly.

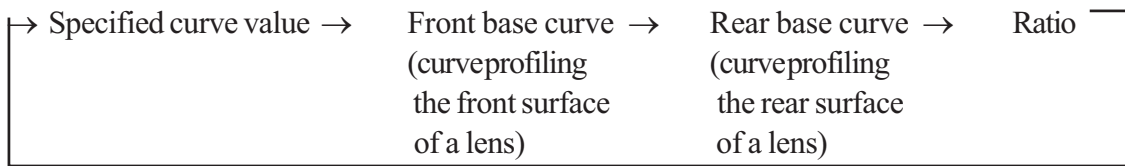
As the curve value is changed, the groove position moves from the edge's thinnest point as the base (The ratio 5:5 will be maintained). The shifted amount of the groove is the maximum at the lens edge's thickest point. Change the groove curve, watching the groove sectional view at the lens edge's thickest point.



The curve value with the "A" mark on the head shows that it is a computer-calculated value. This value produces the same groove curve that is processed in the auto grooving mode.



The curve of the front base curve (FRNT), rear base curve (REAR), or ratio will be selected.



NOTE

- The curve value can only be selected within a range where the groove is on the lens edge. Therefore, the groove will never be off the edge, and a single-sided groove will never be produced even though the groove curve value is changed.

(b) Changing the position of the whole groove parallel to itself

1) Press to simulate the groove at the point where the edge is thinnest (■).

2) Align the cursor to **PNT**.

3) Change the groove dip point value to move the groove position toward the front or rear surface of the lens.

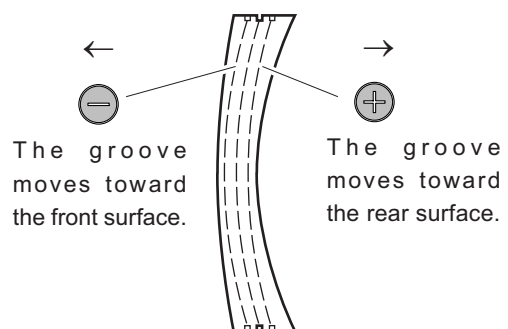
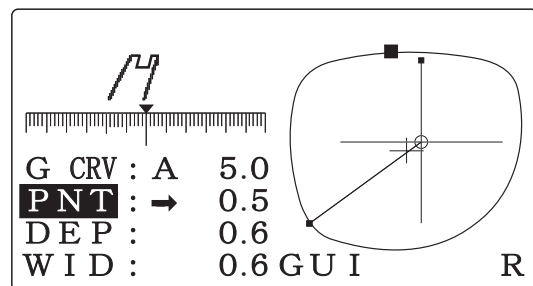
: The groove moves toward the front surface.

: The groove moves toward the rear surface.

← next to the value shows that the groove was moved toward the front surface. → at the value shows that the groove was moved toward the rear surface.

e.g. G CRV: A5.0
PNT : →0.6


This shows that the groove was moved 0.6 mm toward the rear surface parallel to itself while the groove curve value was 5.0.

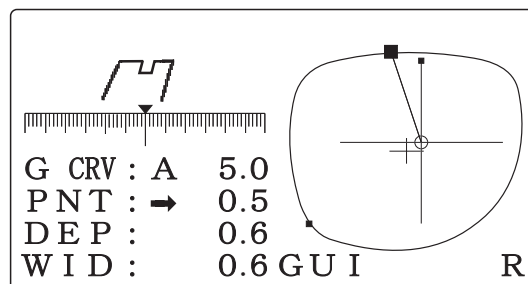


NOTE

- In order to avoid the groove being off the lens edge, be sure to watch the simulation at the thinnest position while changing the value. As distinct from changing the groove curve value, the groove may go off the lens edge.

7. Check the groove section.



- 1) Press  to turn off the cursor.
- 2) Simulate the whole groove to see if the desired groove is obtained. See Step 5 on page 4-39.



8. Repeat Steps 5 - 7 until the desired groove is obtained.

9. Start processing.


Press .

- ③ Roughing
- ↓
- ④ Finishing
- ↓
- ⑤ Polishing (Only when  is selected by Type PL4, PLB, or PLB-2R.)
- ↓
- ⑥ Grooving
- ↓
- ⑦ Chamfering (Only when  is selected.)
- ↓
- ⑧ Processings are complete. [The Layout screen returns.]

* The processing order may change according to the lens material.

10. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.
If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

NOTE

- When a lens, which is difficult to process or whose edge is thick, is polished a part of the lens edge may remain unpolished.
In such cases, retouch the lens without changing the size compensation value.
See “4.6.2 Retouching lenses” (p. 4-53).

4.5.2.5 EX lens grooving mode (LE-9000EX Express only)

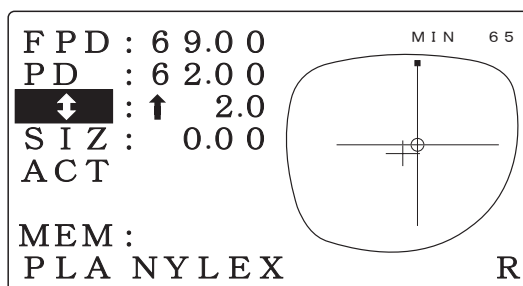
This is a mode to flat edge the EX lens and make a groove for nylon frames. In this mode, the groove is set to the curve of the rear lens surface.

NOTE

- In EX grooving mode, glass lenses cannot be edged.
- Use the lens cup for blocking.
The suction cup cannot hold the convex surface of an EX lens securely enough. The cup may move during blocking.

1. Check the processing conditions.

 : NYL
 : EX



2. Set a lens to the adapter in the processing unit.

See Step 2 of “4.5.1.1 Auto processing mode”.

3. Close the soundproof cover.

Processing does not start even if  is pressed unless the soundproof cover is closed.

WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop.
Spray including processing waste may cause eye damage.

4. Start processing.

Press 


① Lens shape measurement




② The screen changes to the Groove simulation screen and the instrument stops.






NOTE

- If the thinnest lens edge is less than the default, grooving is not performed. At that time, the “Lacked lens thickness” message will appear after the lens shape measurement, and then the instrument stops.

Pressing  goes to the Groove simulation screen. See Step 5 on page 4-43.

Pressing  stops processing. Processing can be performed in the flat edging mode by setting the mode blank.

5. Simulate the groove section at each point of the outline on the screen.

- : The sectional view position line rotates clockwise.
- : The sectional view position line rotates counterclockwise.
- To stop the line movement, press  or  again.
- : The sectional view position line jumps to the point that the lens edge is thinnest (■) and thickest (■) alternately.

[For changing the groove position]

See Step 6 - of “4.5.2.4 Guided grooving mode” (p. 4-39) to change the groove position.

NOTE

- As for the curve value, do not change it but leave it as “REAR”.
The specified curve, front base curve, or ratio is inappropriate for proper grooving.

6. Start processing.

Press .

③ Roughing



④ Finishing



⑤ Polishing (Only when  is selected by Type PL4, PLB, or PLB-2R.)



⑥ Grooving



⑦ Chamfering (Only when  is selected.)




⑧ Processings are complete. [The Layout screen returns.]

* The processing order may change according to the lens material.

7. Remove the lens.

WARNING

- Open the soundproof cover after making sure that the wheels have come to a complete stop.
- Release the chuck by pressing  after making sure that the wheels have come to a complete stop.

If the chuck is released before the wheels have stopped completely and a lens is dropped, it may contact the turning wheels and its scattering may cause injury.

NOTE

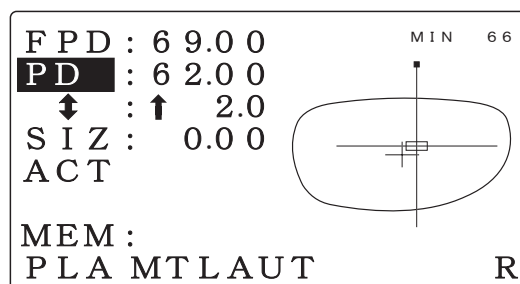
- When a lens, which is difficult to process or whose edge is thick, is polished, a part of the edge may remain unpolished.
In such cases, retouch the lens without changing the size compensation value. See “4.6.2 Retouching lenses” (p. 4-53).

4.5.3 Other processings

4.5.3.1 Processing half-eye lenses

When the distance from the blocking point to the position of the edge-to-be is short and the lens adapter or lens clamp may contact the wheels, the mark of the optical center will change from \oplus to \oplus .

If \oplus is indicated, replace the lens adapter, lens clamp, and lens cup with the ones for half-eye lenses by the following procedure.



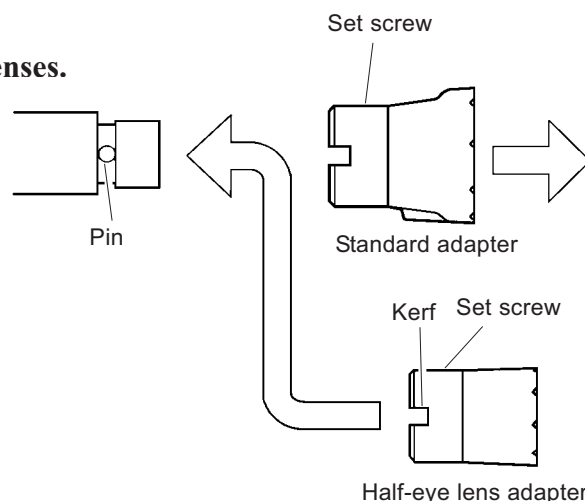
NOTE

- To process a half-eye lens, the following accessories are required.
Required accessories:
a half-eye adapter, a half-eye lens clamp, a half-eye lens cup, double-coated adhesive tape for a half-eye lens, and a hex driver
- When the traced frame has enough vertical diameter, the standard adapter can be used by blocking the lens at the rim center in the passive mode.

1. Replace the adapter with that for half-eye lenses.

- 1) Remove the standard adapter.

Loosen the set screw on the standard adapter with the provided hex driver to remove the adapter.



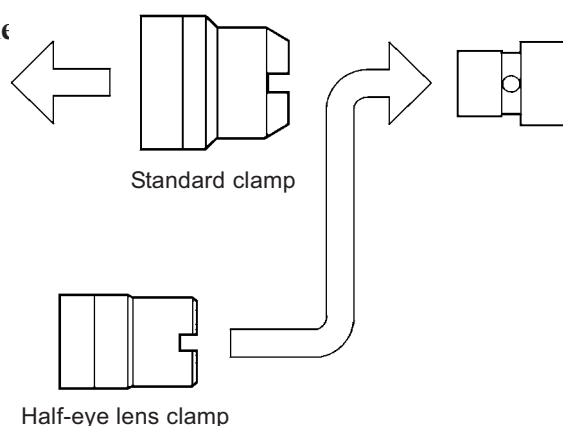
- 2) Set the half-eye lens adapter.

Align the kerf on the adapter with the pin on the shaft, making sure that the set screw is facing toward you to fit the adapter. Then tighten the set screw to fix it.

2. Replace the lens clamp with that for half-eye lens

- 1) Loosen the set screw on the standard clamp to remove it.

Remove the lens clamp after loosening the set screw with the hex driver.



- 2) Fit the half-eye lens clamp securely to the shaft, and fix it with the set screw.

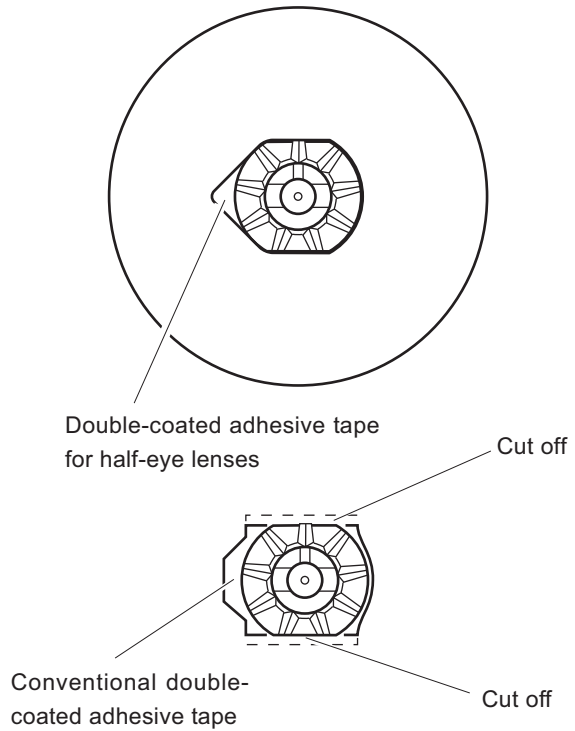
Fit the lens clamp, aligning its kerf with the pin on the shaft securely.

3. Block the lens with the half-eye lens cup.

- 1) Stick the provided double-coated adhesive tape for half-eye lenses to the half-eye lens cup.
(Double-coated adhesive tape for half-eye lenses is supplied only for the NIDEK type.)

If you use the conventional double-coated adhesive tape, cut off the excess part along the edge of the cup.
If the lens is edged without cutting the excess part, the feeler will be put on the tape in the lens shape measurement and correct edging may not be performed

- 2) Block the lens with the half-eye lens cup.



NOTE

- Use the half-eye lens cup that is suitable for the front curve of a lens (only for the NIDEK cup).

An axis shift may occur if a half-eye lens cup that is not suitable for the front curve is used.

Color of lens cup	Suitable lens
Blue	Front curve 5 or less (Suitable for flat lenses such as an aspheric negative lens)
White	Front curve 5 to 9
Pink	Front curve 9 or more (Suitable for a lens that has a sharp front curve)

4. Set the lens to the adapter.

See Step 2 of “4.5.1.1 Auto processing mode”.

NOTE

- Align the top mark on the lens cup with the top mark on the adapter to fit the lens cup into the adapter.
If not, the adapter cannot hold the lens cup securely.

5. Close the soundproof cover and press .

The “Use chuck for half-eye lens” message will appear.

Make sure that the lens adapter, lens clamp and lens cup are the ones for half-eye lenses. If not, replace them after returning to the Layout screen by pressing .

NOTE

- Setting to disable displaying the message for half-eye lenses is available.
When the lens adapter and lens clamp for half-eye lenses are used all the time, the operation will be smooth without stopping the instrument. See “5.2 Parameter Settings” (p. 5-2).

⚠ WARNING

- Be sure to keep the soundproof cover closed while processing a lens.
If the soundproof cover is opened during processing, the instrument does not stop. Spray including processing waste may cause eye damage.

6. Start processing.



Press .

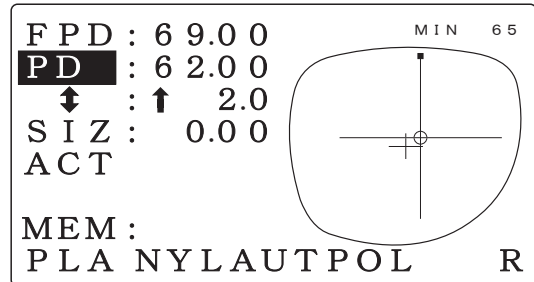
NOTE

- After processing a half-eye lens, be sure to replace the adapter and the lens clamp with the standard ones.

4.5.3.2 Polishing (Types PL4, PLB, and PLB-2R)

This is the mode to polish the lens edge to save the time required to buff the lens edge after finishing.

Press  to set the POL mode before starting processing with .






NOTE

- Glass lenses cannot be polished.
- For Type PL4, polishing cannot be performed during beveling.

4.5.3.3 Chamfering (LE-9000EX Express only)

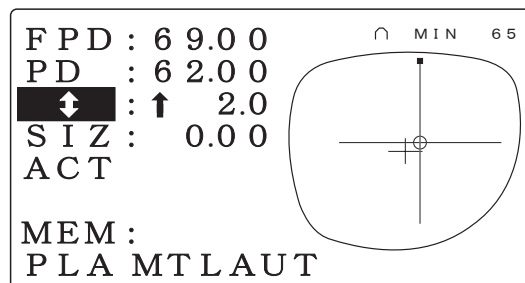
Before processings are completed, chamfering can be performed.



Press  to set the SFB mode before starting processing with .

The LED beside  lights up, and  or  is shown on the display panel.

 ⇒ Both lens edges are chamfered.

 ⇒ Rear lens edge is chamfered.



For setting  or  and safety bevel amount, see “8.13.1 Setting the SFB mode and chamfering amount” (p. 8-31).

[Addition of chamfering]


When the “To add safety bevel” parameter is set to “Exec”, chamfering can be additionally performed after processing.

However, as well as retouching, this cannot be performed such as when removing the suction cup, switching R/L and reading other frame data.

1) Set the SFB mode by pressing .

The LED beside  lights up.


2) Set a lens to the adapter in the processing unit.

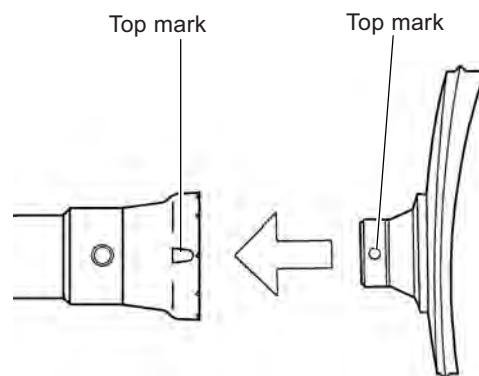
Align the top mark (•) on the suction cup with that of the adapter and insert the suction cup firmly. Then press  to fix the lens.

3) Close the soundproof cover and press .


or .

 ⇒ Chamfering is performed.

 ⇒ After retouching, chamfering is performed.





NOTE

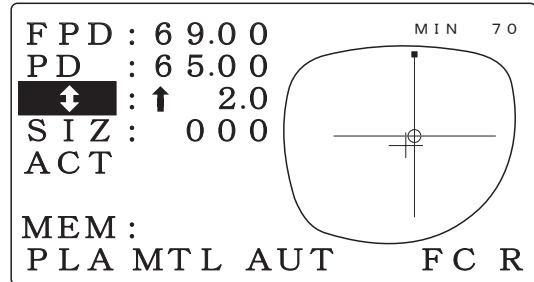
- If chamfering has been performed in the first processing, retouching of the safety bevel can be performed by the same procedure.
- When the **SIZ** value is subtracted with , additional chamfering and retouching of the safety bevel cannot be performed.

4.5.3.4 Simple frame changing mode

This is the mode to process a lens by performing lens shape measurement at 1.5 mm inside of the bevel tip point when the lens size is not large enough for frame changing, etc.

Before starting processing with , place the instrument into the simple frame changing mode by pressing .

“FC” is shown on the lower right of the screen.



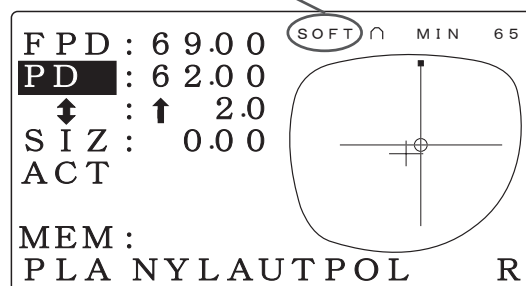
4.5.3.5 Soft processing

This is the processing method to perform the roughing process more precisely. Even though the processing time is extended a little, the processing sound and axis shift during processing are reduced.

For processing of lenses whose coating is very smooth, select this soft processing mode to reduce the axis shift due to slippage.

When glass lenses are broken during processing, also select the soft processing mode to prevent them from breaking.

Displayed only when the soft processing mode is selected.



NOTE

- The soft processing mode is effective only when “PLA”, “HPL”, “PC”, or “GLS” is selected for the lens material.
- When “PLA”, “HPL”, or “PC” is selected for the lens material, the soft processing mode cannot be selected in the frame changing mode.
- When glass lenses are broken in the half-eye lens processing, use a white lens cup or the optional pliable cup.

[Setting the soft processing mode at all times]

Set the “Grinding mode” parameter to “Soft” on the Parameter exchange mode screen. See “5.2 Parameter Settings” (p. 5-2).

When the lens material is set to “PLA”, “HPL”, “PC”, or “GLS”, the soft processing mode is automatically turned on.

[Setting the normal processing mode and soft processing mode on the Layout screen]

Regardless of the parameter setting, pressing  for about 1 second produces a beep and turns on or off the soft processing mode.

When the soft processing mode is on, “SOFT” is displayed at the upper part of the Layout screen.

4.5.3.6 Inputting the frame tilt angle in flat edging

To increase the finished PD accuracy, correction is made using the frame tilt angle measured during tracing. For nylon or two-point frames, however, the frame tilt angle cannot be measured because the pattern is traced. The frame tilt angle is entered for a corrective calculation to increase the finished PD accuracy in flat edging.


This parameter is factory set to 5.0°. For frames that are very tilted, it is recommended to enter the frame tilt angle by the following procedure and then set the value back to the original after processing.

1. Roughly measure the frame tilt angle using a piece of graph paper.



2. Call up the MENU screen.

Press .

3. Call up the PD adjustment screen.

After moving the cursor → to “PD adjustment”, press .

4. After moving the cursor → to “Frame Tilt Angle (flat)”, enter the frame tilt angle using

 or .

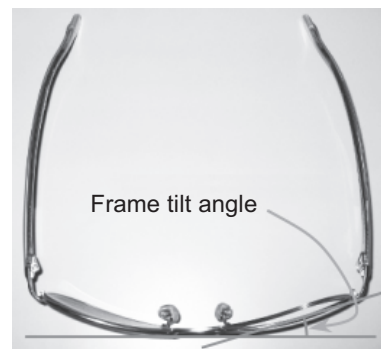
Range: 0.0 to 30.0°, increment: 0.5°

5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.



```

*****
*          PD adjustment          *
*****
*EXIT : Press SELECT

PD constant                : 0.00mm
→Frame Tilt Angle (flat)  : 18.0°
  
```

4.6 Checking the Lens Size

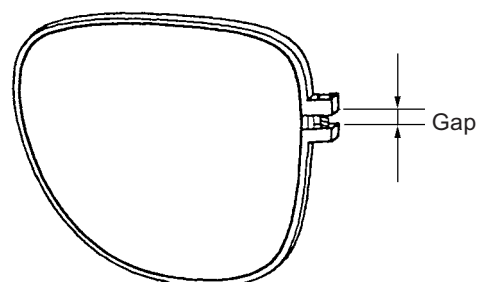
Check the lens size after processing is completed. If the lens is too large, retouch it to correct the size.

4.6.1 Checking the lens size

Fit the lens in the rim and measure the gap at the rim joint.

NOTE

- Do not remove the cup yet, otherwise the lens cannot be retouched.



4.6.2 Retouching lenses

If the finished size of the lens is too large to fit into the rim, perform retouching.

1. Change the **SIZ** value with .

No values other than **SIZ** can be changed.

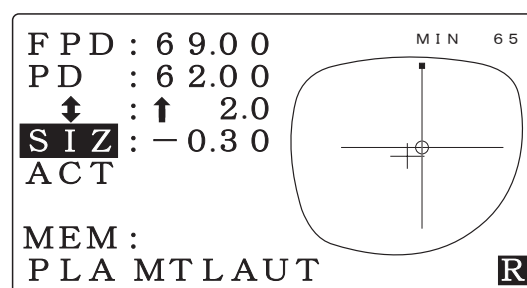
Reference guide for size correction:

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


e.g. For the gap of 1 mm:

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

Subtract 0.3 from the **SIZ** value.



2. Set the lens to the adapter.

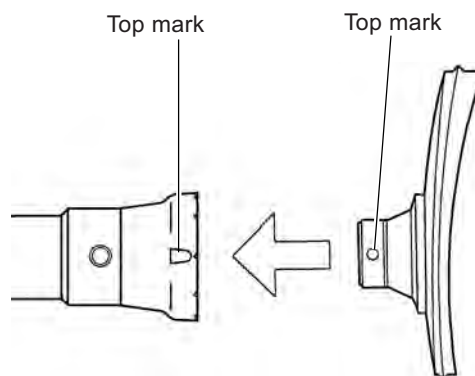
Align the top mark (•) on the cup with that of the adapter to reset the lens. Then, press  to fix the lens.

3. Start retouching.

Close the soundproof cover and press .

4. After the process, check the lens size again.

If the finished lens is still large, retouch it again.



NOTE

- In the retouching process, reducing the lens size by more than 0.5 mm may reduce its vertical width.

Therefore, in trial processing, process a lens with its size 3 mm larger. In actual processing, do not perform retouching but follow the instructions below beginning with roughing.

1) Change the size value.

2) Press  twice.

3) Press  to start processing.

- Retouching cannot be performed such as when removing the suction cup, switching R/L, or reading other frame data.

[Retouching of the groove](LE-9000EX Express only)

Retouching of the groove can be performed by the same procedure with “[Addition of grooving]” (p. 4-33).

In addition, if the **SIZ** value is changed, retouching of the groove cannot be performed.

Moreover, if “GUI” is selected, any changes other than the groove depth and width to a larger size cannot be made on the Simulation screen.


[Retouching of the safety bevel](LE-9000EX Express only)

Retouching of the safety bevel can be performed by the same procedure with “[Addition of chamfering]” (p. 4-49).

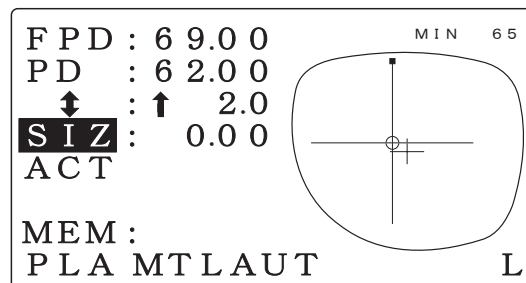
In addition, if the **SIZ** value is changed, retouching of the safety bevel cannot be performed.

4.7 Processing the Opposite Lens

1. Change the lens to be processed.

Press  to switch the lens to be processed.

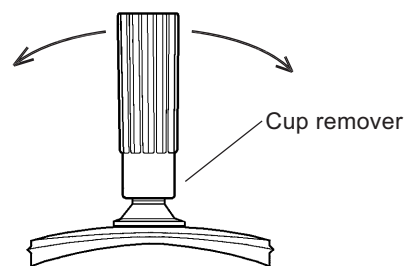
2. Process the opposite lens in the same manner.



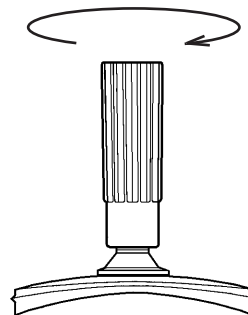
4.8 Removing the Lens Cup

When removing the lens cup (suction cup or lens cup), use the provided cup remover.

Insert the cup remover into the lens cup, and remove the lens cup while prying the cup with the remover.



Since lenses such as polycarbonate lenses are thin, prying the cup may crack the coated surface of the lens. In such cases, remove the lens cup while turning the remover.



CAUTION

- When removing the lens cup while prying it off with the cup remover, hold the lens with a soft cloth.
If you hold a lens with bare hands, the lens edge may injure them.

4.9 Treatment after Daily Use

1. Clean the processing unit.

Follow Steps 1- 4 in “8.1 Wheel Dressing” to water the processing unit and wash out the processing wastes with a brush.

CAUTION

- Be careful not to let water get inside the instrument.
It may cause an instrument malfunction.

NOTE

- Clean the processing unit after the final use of the day. Be sure to clean it on the day that the instrument is used.
If the instrument is left for several days after use, the processing waste becomes settled and hard to remove.

2. Turn the power OFF.

3. Perform the after-use daily check. See “4.10.2 Daily check after use” (p. 4-58).

4. Store accessories in a customary place.

Wipe off the accessories and store them in a customary place to avoid possible loss or breakage.

4.10 Daily Checks

4.10.1 Daily check before use

Check the following before use every day.

It is recommended to provide a check list to make sure everything is checked.

A. Is the wheel in proper condition?

Check that there are no fractures, cracks or flaws on the wheel.

CAUTION

- In case that fracture, crack or flaw on the wheel were found, stop using the instrument and contact NIDEK or your authorized distributor.
Continued use of the instrument may break the processing wheel and its broken pieces may injure personnel.

B. Is there enough water in the tank ?

The tank should be filled up to 70 - 80% with water.

NOTE

- If the water is very dirty, replace the water. See “8.2 Replacing the Water and Filter” (p. 8-5).
With dirty water, the lens edge may not be well polished.

C. Does the stocking filter have enough free space?

If it is filled with processing waste, replace the stocking filter. See “8.2 Replacing the Water and Filter” (p. 8-5).

D. Does the Layout screen appear when the power is turned ON ?

- 1) Turn the power ON.
- 2) Make sure that errors do not appear for the Layout screen.

E. Confirm that wash water (for the inside wall of the processing chamber) and cooling water (for the wheels) flow properly.

- 1) Set dressing mode.
- 2) Press to confirm that wash water and cooling water are flowing.
START

CAUTION

- Take care not to get spray into your eyes.
Spray including processing waste may cause eye damage.

If wash water or cooling water do not flow, confirm that the PUMP1 and PUMP2 hoses and the power cords are properly connected to the main unit.



4.10.2 Daily check after use

Check the following after the final use every day.

It is recommended to provide a check list to make sure everything is checked.

A. Is the power turned OFF?

B. Is the processing unit well cleaned?

C. Are there any stains or damage to the main body?

D. Do any accessories have damage?

For the content of accessories, see “§10 ACCESSORIES”.

4.11 Periodical Check

It is recommended to perform an inspection every two years in order to use the instrument for a long time under normal conditions. In the periodical inspection, a performance check of the whole system and replacement of maintenance parts are done.

If inspection is required, contact NIDEK or your authorized distributor.

Periodical maintenance item	Maintenance contents
Wheel*	Check that there is no deterioration in processing performance. Replace the wheel if its processing surface is frayed, which will be a problem in practical use.
Spindle unit	Put more grease on the waterproof seal. Replace the waterproof seal if it has deteriorated.
Chamber	Check that there are no cracks, fractures, deterioration, or problems on the chamber. Replace the chamber if there is a problem.
Carriage	Put more grease on the lens clamp axis, Y axis, and X axis, or lens rotating axis of the carriage.
Interior of the instrument	Check that there is no waste inside of the instrument. Clean the interior if waste is found.
Feedwater hoses/Drain pipe (including feedwater hoses in the instrument)	Check that there are no cracks, deterioration, or clogging in the feedwater hoses and drain pipe visually and by touch. Replace a hose or pipe if there is a problem.

* Replace the wheel every two years or after the processing of five thousand lenses. Contact NIDEK or your authorized distributor. However, the lens number is referred only as a guide, so replacement at an earlier period may be needed under such conditions that hard lenses have been processed successively or numerous high-power minus lenses have been processed. Be careful not to dress or process glass lenses with the wheel for plastic lenses. If the wheel has been damaged because of such carelessness, it will extremely shorten the lifetime of the wheel.

§5 OTHER FUNCTIONS

5.1 Process Counter


This function displays the count for lenses that have been processed since production for each lens material. In addition, the counts for polished, grooved, and chamfered lenses are also displayed.

1. Call up the MENU screen.

Press .


```
*****
*           M E N U           *
*   Length R:143.78 L:143.76 *
*****
→ Process counter
  Wheel dressing
  Size adjustment
  Bevel adjustment
  AXIS adjustment
  PD adjustment
```

2. Select “Process counter”.

Align the pointer (→) to “Process counter” and press .

The process count for each material will be shown.*1

```
*****
*           P r o c e s s   c o u n t e r           *
*****
*EXIT : Press SELECT
→ Glass      : 000434 PCS
  Plastic    : 000713 PCS
  Polyca     : 000250 PCS
  Polish     : 000452 PCS
  Groove     : 000400 PCS
```

For the LE-9000EX Express, to check the chamfered lens count and total processed count, move the pointer (→) downward with .

```

Glass      : 000434 PCS
Plastic    : 000713 PCS
Polyca     : 000250 PCS
Polish     : 000452 PCS
Groove     : 000400 PCS
SFB Front  : 000500 PCS
SFB Rear   : 001013 PCS
→ Total    : 001397 PCS
```

3. Go back to the MENU screen.

Press .

4. Go back to the Layout screen.

Press  twice.

*1 The process counter of high index plastic, acrylic resin or trivex lenses is included in Plastic. If it is optionally set to process high index plastic lenses with the glass roughing wheel, the process counter of high index plastic lenses is included in Glass.

5.2 Parameter Settings

This function sets each parameter according to the operator's use.

1. Call up the MENU screen.

Press .



```
*****
*           M   E   N   U           *
*           Length R: 143.78 L: 143.76 *
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Parameter exchange mode screen.

Press  again.

```
*****
*           Parameter exchange mode   *
*           Ver. MASTER V1.08.11     *
*           TRACER V2.01             *
*           TYPE : PL4               *
*****
→ LANGUAGE      : ENGLISH (S)
  1) Size preset (PLA, MTL) : 0.00
  2) Size preset (PLA, CEL) : 0.00
  3) Size preset (GLS, MTL) : 0.00
```



3. Select the item whose parameter needs to be changed.

Align the pointer (→) to the desired item with  or .

The setting items and their contents are shown on the next page.

```
15) BF ChuckLayout Side      : -5mm
16) BF ChuckLayout Height   : +5mm
17) TILT Function            : None
18) Reverse GLS Grind       : None
→ 19) Grinding mode          : STD
20) Meas. after roughing    : None
21) Maintenance message    : Both
22) To add safety bevel     : None
```

4. Change the setting.

Change the setting with  or .

5. Go back to the Layout screen.

Press .

[Parameter items and the settings]

- 1) Size preset (PLA, MTL) : ± .
- 2) Size preset (PLA, CEL or ZYL) : ± .
- 3) Size preset (GLS, MTL) : ± . (Not function for Type PLB)
- 4) Size preset (GLS, CEL or ZYL) : ± . (Not function for Type PLB)

Factory setting: +0.00 [mm]

Initial settings of the size corrective value for each combination of lens material and frame material.

(Available setting range: -9.95 - +9.95)

For the value of the lens material of the high index plastic, polycarbonate, acrylic resin, and trivex lenses, it complies with the one for plastic lenses.

5) Initial value of FPD

: ± □ □ . □

Factory setting: +70.0 [mm]

Sets the initial FPD value.

6) Initial value of PD

: ± □ □ . □

Factory setting: +62.0 [mm]

Sets the initial PD value.

Press  or  to input any PD value. The set value appears first on the Layout screen.**7) Layout preset**

: ± □ □ . □

Factory setting: +2.0 [mm]

Presets the height of the optical center. Set the value as the height of the optical center from the rim center. When inputting each item of data of the lens layout, this value is automatically set at \updownarrow (could be PD \updownarrow or BT \updownarrow). This setting is not effective for eye point layout.

8) Measure in flat edge: **None, Exec**

Factory setting: Exec

Selects whether to measure the lens shape during flat (rimless) edging. When “Exec” is selected, the lens shape will be measured (the rear side only) before roughing to check if the lens size is large enough.

Lenses can be edged without measuring the lens shape by selecting “None”. Regardless of the setting, the lens shape will be measured when “To add safety bevel” is set to “Exec”, or chamfering and/or grooving is performed.

9) Grind by mirror image: **R, L**

Factory setting: R

When both rims are traced, the mirror image of the right or left rim will be used as the lens shape data for the opposite lens. This parameter decides which is the base side (right or left). In spite of the shape being mirrored, the size (circumference) is not mirrored, but comply with the outline for the respective lens.

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

Factory setting: NAVIS

Selects whether or not to communicate with an external instrument and sets the communication format. Only when “None” is selected, the memory function becomes available.

STD.: NIDEK standard format. This is used to connect a NIDEK instrument with the edger. The edger is able to interface with the NIDEK LT-200, LT-700, LT-800, or LT-900.

RS232: RS-232C standard format

LAN: LAN format

ExLAN: Extended specifications for the LAN format

MGNET: Format for the MEGANET terminal

BK/LE: Communication format for the one-to-one connection with the NIDEK INTELLIGENT BLOCKER ICE-2000/ICE-9000/ICE mini

NAVIS: Format for the NAVIS-EC terminal

DVI: DVI format

VCA-A: VCA format

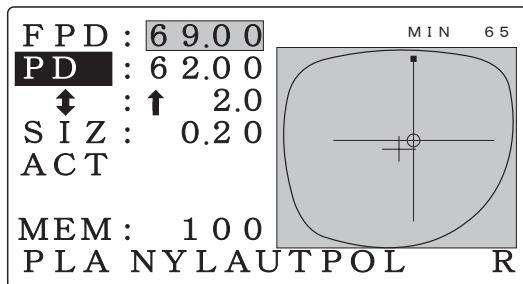
VCA-B: VCA format. In VCA (OMA) communication, the received circumference is not used but the 3-D circumference is recalculated from the frame curve for processing.

11) Layout memory : None, Exec

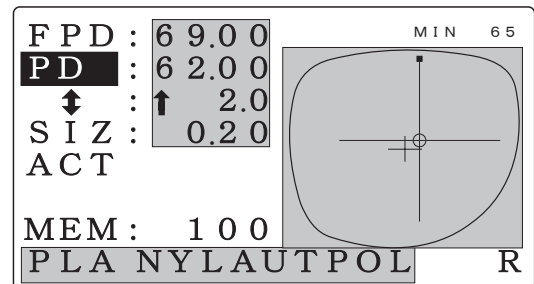
Factory setting: Exec

Selects whether or not to call up layout data as well as the lens shape when calling up the data with the memory function.

In the following screen, data in the area shows that it can be called up to the screen at each setting.



<When setting at "None">



<When setting at "Exec">

12) Bar Code memory : None, Exec

Factory setting: None

Selects whether or not to use the optional barcode scanner to call up the data from the internal memory. By connecting the barcode scanner, it becomes possible to store 500 pieces of frame data.

13) Half eye check : None, Exec

Factory setting: Exec

Selects whether or not to display the message suggesting cup replacement and to stop the instrument, during processing of a lens with a short vertical width.

Set the parameter to "Exec" except when the half-eye lens chucking is successively performed.

14) Data Transfer : NON, VALUE, MATER, POLIS, BF, ALL

Factory setting: NON

Selects the kinds of data that the edger does not accept when receiving data from an external device. The selected data in the parameter will be transmitted, but not accepted by the edger. On the edger side, the previous data remains active even after data transmission.

Only when the communication specifications are special and the parameter "Ext. interface" is set to "DVI", this setting is available.

NON: No received data will be disabled; All the data will be recognized and shown on the screen.

VALUE: All the data of the lens layout is disabled.

MATER: The data of lens material is disabled.

POLIS: Only the data of "POL (polishing)" is disabled.

BF: Only the data of "BIF (bifocal) mode" is disabled.

ALL: All the data of the lens layout and processing conditions are disabled.

15) BF ChuckLayout Side : ± □ □ mm

(If a minus value is input, the lens will be processed with its blocked point at the specified value outside from the top line center of the segment.)

Factory setting: -5 [mm]

16) BF ChuckLayout Height : ± □ □ mm

Factory setting: + 5 [mm]

Setts the lens layout for blocking lenses. Specify the shifted values from the top line center of the segment in blocking bifocal lenses. When using the NIDEK Centering device, Model CE-1, leave the setting at the factory setting (5 mm outside, 5 mm up) and never change it.

17) TILT Function : None, Exec

Factory setting: None

Selects whether or not to use the tilting function in the guided edging mode. If a lens has an extreme difference in width between the edge's thickest point and thinnest point, the appearance of the mounted lenses will improve by tilting the bevel.

18) Reverse GLS Grind : None, Exec

Factory setting: None

Selects whether or not to use the roughing function which changes the lens rotation direction to reduce the processing time of a glass lens. To put a premium on the processing time reduction, set this parameter to "Exec". Setting this parameter to "Exec" roughly edges a lens by automatically changing the position to be contacted with the wheel from side to side so that the roughing wheel will not be worn on one side.

19) Grinding mode : STD, Soft

Factory setting: STD

Selects whether or not to turn on the soft processing mode as default. See "4.5.3.5 Soft processing" (p. 4-51). If this parameter is set to "Soft", the soft processing mode is automatically turned on when "PLA", "HPL", "PC", or "GLS" is selected for the lens material. In this mode, the processing sound and the axis shift of a lens whose coating is smooth are reduced. For glass lenses, this mode is effective to prevent lenses from breaking during processing.

20) Meas. after roughing : None, All, PLA

Factory setting: None

Sets the function that allows remeasurement of lens shape after roughing.

None: After roughing, the lens shape is not remeasured.

All: Except when the lens material is set to "GLS" (glass), the lens shape is remeasured after roughing.

PLA: When the lens material is set to "PLA" (plastic) or "HPL" (high-index plastic), the lens shape is remeasured after roughing.

Remeasuring the lens shape after roughing prolongs the processing time; however, the problem that a bevel or groove is displaced from the desired position due to distortion produced on a lens during roughing can be improved.

Regardless of this setting, the lens shape will not be measured when both the "Measure in flat edge" parameter and the "To add safety bevel" parameter are set to "None", and neither chamfering nor grooving is performed in flat edging.

21) Maintenance message: Tank, Wheel, Both, None

Factory setting: Both

Sets the function that displays a maintenance message that prompts the user to replace the processing water or dress the wheel.

Tank: Immediately after processing of 70 lenses, “Please Clean Tank & Pump and Replace filter” is displayed.

Wheel: Immediately after processing of 2000 lenses, “Wheel Dressing Reminder/ Dress bevel and polish wheels/ See Operator’s Manual” is displayed.

Both: Both settings of the above Tank and Wheel are enabled.

None: Both settings of the above Tank and Wheel are disabled.

22) To add safety level : None, Exec (LE-9000EX Express only)

Factory setting: None

Selects whether or not to perform chamfering additionally in the state of retouching after the process. When “Exec” is selected, the lens shape will be measured before processing so that the chamfering and/or grooving can be performed.

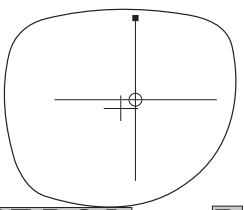
5.3 Storing the Initial Screen

This function stores the following items on the Layout screen as the initial screen which appears just after power-up. If the factory-set items on the initial screen do not satisfy the operator’s needs, it is possible to change the items to be displayed and restore them. This function eliminates the inconvenience of changing the unnecessary items every time the initial Layout screen appears.

<Items to be stored>

The items with are changeable and can be stored.

<input type="checkbox"/>	FPD	:	6 9.0 0	<input type="checkbox"/>	MIN	6 5
<input type="checkbox"/>	PD	:	6 2.0 0			
<input type="checkbox"/>	<input type="checkbox"/>	↑ ↓	↑ 2.0			
<input type="checkbox"/>	S I Z	:	0.2 0			
<input type="checkbox"/>	ACT					
	MEM	:	1 0 0			
<input type="checkbox"/>	PLA MTLAUTPOL			<input type="checkbox"/>		R



- FPD, DBL or Eye point layout (whether or not to select the eye point layout]
- PD or 1/2PD [inputting form of pupillary distance]
- ↑ ↓, PD ↑ ↓, or BT ↑ ↓ (inputting form of height of the optical center)
- ACT, BF, or PAS [Layout mode]
- PLA, HPL, PC, GLS, ACR or TRX [lens material] (except for glass lenses of Type PLB)
- MTL, CEL (ZYL), PNT, or NYL [frame material]
- AUT, GUI, EX, or Blank [processing mode]
- POL or (Blank) [whether or not to perform polishing]
(Type PL4, PLB, and PLB-2R only)
- R or L [The lens which appears first after is pressed.]
- ON/OFF of SFB [whether or not to perform chamfering] (LE-9000EX Express only)

Each value on the screen cannot be stored. For setting the respective preset values for FPD, PD, and height of the optical center, see “5.2 Parameter Settings” (p. 5-2).

<Storing method>

1. Change the settings.

Set the settings of the above items on the Layout screen as desired.

2. Store the new settings.

Hold  down for 5 seconds.

A beep will be produced to indicate that items on the screen have been stored.

5.4 Storing and Calling Up Traced Data (built-in memory)

The edger is provided with a memory function, which stores traced data and lens layout data in their memory and calls them up whenever necessary. By storing a repetitive lens outline as standard data and calling it up with the function, the operator does not have to trace the same lens for each processing and can save time required for lens processing. In addition, even if a frame is not available, it is possible to process the lens as soon as it is ready. The memory holds up to 100 sets of the traced and layout data at most. The use of the optional barcode scanner extends the storable number of data up to 500 sets of data.

CAUTION

- When a lens is to be edged using data called up from the memory, perform edging after checking the traced outline on the screen.
When called data is abnormal, the error code (Error 0906) will be shown. Restore the data without processing.

NOTE


- Concurrent use of the communication function and memory function is impossible. Only when the parameter “Ext. interface” is set at “None”, the memory function becomes available.
- The stored data is battery-protected even if the power has been turned OFF.
Since this battery is rechargeable, the battery becomes empty and the stored data may be lost if the instrument is not used for a long time (about one month) or soon after the instrument is purchased. In this case, turn ON the power of the main body and charge the battery. For full-charging, it is necessary to keep the power ON for 15 hours.
If power is supplied to the instrument for one hour or more everyday after full-charging, the battery becomes almost fully charged. If the instrument is used for a short time, keep the power of the instrument ON for several hours once a month.

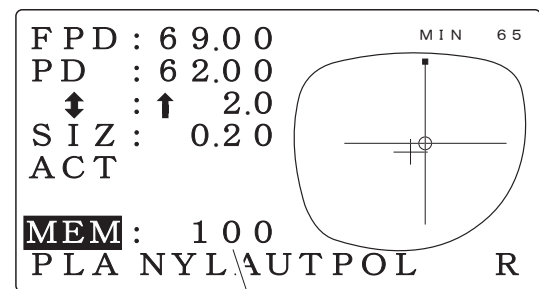
5.4.1 When the edger is not connected to the barcode scanner

The internal memory built into the standard type of instrument can store and manage the traced outline and lens layout data of 100 sets of frames.

<Storing method>

1. Read the traced data.
2. Set the “Ext. interface” parameter to “None”.
3. Input layout data if necessary.
4. Align the cursor (■) to “MEM” with ▽.
5. Select the memory address*² from the 001 to 100 range with ⊕ or ⊖.
The indication of an address whose data has already been stored is highlighted.


6. Press  to store data such as traced outline, lens layout, lens material, frame type, processing mode, and the polishing mode (ON/OFF).



Memory address

<Calling up method>

To call up the traced outline only, set the “(11) Layout memory” parameter to “None” in advance (see p. 5-4).

1. Align the cursor to “MEM” with ▽.
2. Select the memory address with ⊕ or ⊖.
The indication of an address whose data has already been stored is highlighted.
3. Hold  down until the instrument produces two electrical beeps.
The traced outline will appear on the Layout screen.

*2 Memory address shows the data address at which the traced data and layout data are stored. If you store new data under the address at which data has been already stored, the former data will be erased.

5.4.2 When the edger is connected to the barcode scanner

By connection of the edger to the optional barcode scanner, the barcode memory function, which stores traced outline and lens layout data for a maximum of 500 sets of frames, becomes available. The read barcode number is stored as the registered number of the data. The barcode numbers allow easy management of frames.

CAUTION

- The barcode memory function cannot be used concurrently with the memory function with memory addresses of the standard specifications.
- When the instrument is changed from the standard specifications to the barcode specifications, all the data stored with memory addresses will be erased.


NOTE

- Ensure that the barcode scanner is connected to the connector for the barcode on the rear panel of the instrument (see p. 3-1).

<Storing method>

1. Read the traced data.
2. Set the “Ext. interface” parameter to “None”.
3. Input lens layout as necessary.
4. Read the corresponding barcode of the frame to be stored.

The screen will change to the Barcode screen, and the read barcode will be shown.*³

5. Press  to store the traced outline, lens layout, lens material, frame type, and the grinding mode.

After all data have been stored, the Layout screen will return.

```

CODE      : 0123456789012345
DATA WRITE :   START
DATA READ  :   DATA SET
CANCEL    :   SELECT
  
```

*³ When data is additionally stored with a barcode number whose data has already been stored, the former data will be erased.

NOTE

- To cancel data storage to the memory after reading the barcode, press .

<Calling up method>

To store only the traced outline and not store the lens layout data, set the “Layout memory” parameter to “None” in advance (see p. 5-4).

1. Read the barcode of the frame whose data is to be called up.

The screen will change to the Barcode screen, and the read barcode will be shown.

2. Press  to call up the data.

After calling up the data, the corresponding traced outline to the barcode will appear on the screen.

```

CODE      : 0123456789012345
DATA WRITE :   START
DATA READ  :   DATA SET
CANCEL    :   SELECT





```

NOTE

- To stop calling up data from the memory after reading the barcode, press .

§6 TROUBLESHOOTING GUIDE

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

Symptoms	Action
The display does not show anything though the power is turned ON.	Replace fuses. See "8.4 Replacing Fuses" (p. 8-12).
The message "Use chuck for half-eye lenses" appears and the instrument stops.	Use the adapter set for half-eye lenses. See "4.5.3.1 Processing half-eye lenses" (p. 4-45).
During lens shape measurement, the screen changes to the Bevel simulation screen, and part of the traced outline blinks.	The size of the set lens is not large enough to be processed into the selected lens outline. The blinking line shows the lens diameter is not large enough for the part. Press  to stop processing, and use a larger lens or change the lens layout.
Processing does not start though  is pressed. Instead, electrical beeps sound.	Processing cannot start in the state where the soundproof cover is open. Close the soundproof cover. The instrument tries to process the same side of the lens. Press  to change the indication R or L to process the opposite lens.
The memory function cannot be used.	Change the setting of parameter "10) Ext. interface" to "None".
A maintenance message appears and the instrument stops.	A problem occurred in the instrument. Press  to reset the instrument. Follow the maintenance message on the screen. If the message appears again, contact NIDEK or your authorized distributor.

* In the event that a symptom cannot be eliminated by the corresponding suggestion above, contact NIDEK or your authorized distributor.

§7 STORAGE

NOTE

- Store the instrument in an environment free from dust and direct sunlight.
Avoid storing the instrument in humid surroundings.
- If the instrument will not be used for a long time, unplug the power cable from the wall outlet.
If settled dust in and on the instrument attracts moisture, it may cause a short circuit or a fire.

1. Unplug the power cable from the wall outlet.

2. If the instrument will not be used for a long time, drain the water from the tank.

3. Close the soundproof cover.

4. Store accessories.

Store them in a customary place such as the drawer of the cabinet or small articles box to avoid possible loss or damage.

§8 MAINTENANCE

8.1 Wheel Dressing

A clogged wheel requires a longer time for processing and makes the finished size inaccurate. It is necessary, therefore, to regularly dress the wheels.

⚠ CAUTION

- In the dressing mode, the cover sensor is released and the wheels turn with the soundproof cover open. While dressing, work with special care.
- Be sure to wear protective glasses while dressing the wheel.
Spray including processing waste may damage your eyes.
- Be sure to select a proper dressing stick for a dressed wheel type. See p. 3-4 for the wheel combination of each instrument type.

Using an improper dressing stick may damage the wheel and a lens may not be processed properly.

Roughing wheel for glass lenses ⇒ Dressing stick for the roughing wheel (orange) WA80K


Finishing wheel ⇒ Dressing stick for the finishing wheel (white) WA320K

Polishing wheel ⇒ Dressing stick for the polishing wheel (light blue) WA4000 RH-20

Chamfering wheel ⇒ Dressing stick for the polishing wheel (white) WA320K

- Never dress the roughing wheel for plastic lenses.
It will damage the wheel, and as a result, a lens may not be edged properly any longer.

NOTE

- When the processing is not completed within a certain period of time due to clogging of the glass roughing wheel or finishing wheel, it is stopped and the “Rough Wheel Dressing Reminder” or “Finish Wheel Dressing Reminder” message appears. According to the message, dress the wheel.
- Pressing  during wheel dressing stops water from the chamber-cleaning nozzle to prevent the chamber from getting soiled.

If water discharge from the chamber-cleaning nozzle has been stopped accidentally, press





again to resume discharging.

1. Call up the MENU screen.

Press .

```
*****
*           M     N     U           *
*           Length R:143.78 L:143.76 *
*****
→ Process counter
Wheel dressing
Size adjustment
Bevel adjustment
AXIS adjustment
PD adjustment
```

2. Call up the Wheel dressing screen.

Align the pointer (→) to “Wheel dressing” with  and press .

```
*****
*           Wheel dressing           *
*****
Press a following SW
when not chucking.
START : Dress / water on, off
SFB   : Safety Bevel Wheel
STOP  : PAUSE
SELECT: EXIT
```

3. Open the soundproof cover.

4. Start dressing.

⚠ CAUTION

- Apply the end surface of the dressing stick to the wheel, not the corner or the edge. Otherwise, the wheel may be damaged.
- Hold the dressing stick with both hands.
If the stick is held with one hand, the stick cannot be held strongly enough, the corner of the stick may collide with the wheel and damage it.
- Hold the dressing stick so that its end is 2 - 3 cm away from your fingers.
If the stick is held closer than this distance, you may contact the wheels and your fingers may get hurt.
- Be sure to replace the dressing stick worn some 4 cm with the new one. Especially, replace the dressing stick for the polishing wheel when it becomes shorter than 5 cm.
It is hard to hold a shortened dressing stick, and your fingers may get hurt or the wheels may be damaged.

[Dressing the roughing wheel for glass lenses and the finishing wheel]

- 1) Press .
Water will run for a few seconds, and at the same time, wheels will begin to turn.
- 2) Wet the dressing stick well with running water.
- 3) Press to stop the water.
- 4) Apply the dressing stick a little forcefully to the turning wheel.
Keep applying it for about 5 seconds.
- 5) Press .
Water will run to clean the wheel.
- 6) Repeat Steps 2) - 5) a few times.
- 7) Press .
Running water will stop and the turning wheels will stop as well.



[Dressing the polishing wheel]

- 1) Press .
START
Water will run for a few seconds, and at the same time, wheels will begin to turn.
- 2) Wet the dressing stick well with running water.
- 3) Press to stop the water.
START
- 4) Apply the dressing stick gently to the turning wheel.
Keep applying it for a few seconds.
- 5) Press .
START
Water will run to clean the wheel.
- 6) Repeat Steps 2) - 5) four or five times.
- 7) Press .
STOP
Running water will stop and the turning wheels will stop as well.

⚠ CAUTION

- After is pressed, applying the dressing stick to the polishing wheel which is turning by the force of inertia will damage the wheel and normal processing will not be able to be performed.
- The dressing of the polishing wheel is intended to make the wheel surface smooth. Gently apply the dressing stick so as not to scratch or streak the wheel surface.

NOTE







- Soak the dressing stick for the polishing wheel in water 10 minutes prior to dressing the wheel.

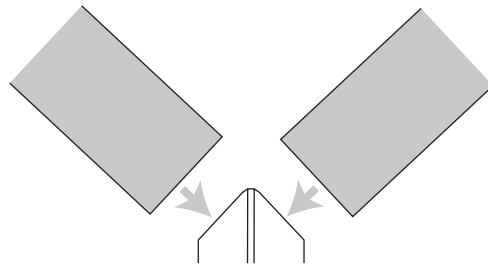
[Dressing the chamfering wheel](LE-9000EX Express only)

When chamfering glass lenses frequently, dress the chamfering wheel.

⚠ CAUTION

- Apply the dressing stick gently.
If the dress stick is applied forcefully, it may affect the chamfering amount.

- 1) Press .
The chamfering wheel will come out.
 - 2) Wet the dressing stick well with running water.
 - 3) Press  to stop the water.
 - 4) Apply the dressing stick gently to the chamfering edge of the chamfering wheel.
 - 5) Press .
Water will run to clean the wheel.
 - 6) Press .
The chamfering wheel will be stored.
- 5. Press  after dressing.**
The screen will go back to the MENU screen.
- 6. Go back to the Layout screen.**
Press  twice.



[Grooving wheel](LE-9000EX Express only)

The grooving wheel does not need to be dressed.

8.2 Replacing the Water and Filter (115 V regions)

The procedure differs depending on whether the optional FP-100 is equipped or not.

8.2.1 Replacing the water (when the optional FP-100 is equipped)

Replace the processing water and stocking filter in the tank periodically. It is recommended that the water be replaced for every 100 lenses processed.

NOTE

- Do not mix antifoam agents with the processing water since the filter at the bottom of the tank will be clogged, which prevents filtering.
- When the “Please Clean Tank & Pump and Replace Filter” message appears and the processing is stopped, replace the processing water and stocking filter, and remove the waste accumulated in the drain pipe connector.

1. Take the tank out of the cabinet.

Open the cabinet and draw the tank toward you.

2. Disconnect the two feedwater hoses.

Press the red button on the hose to disconnect.

3. Disconnect the drain pipe from the tank.

4. Drop the stocking filter into the tank.

1) Remove the drain cover from the drain pipe connector.

Drop the waste accumulated on top of the drain cover into the tank.

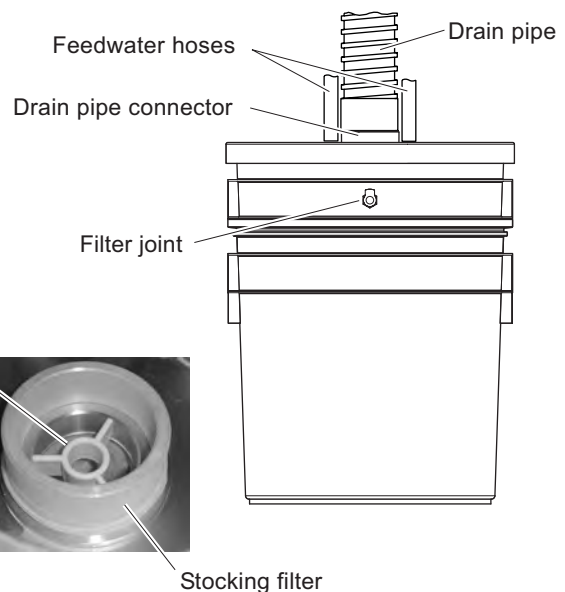
2) Drop the stocking filter into the tank.

5. Remove the lid of the tank and put the waste in the stocking filter into the tank.

1) Remove the lid of the cover.

2) Rip the stocking filter with a cutter, etc. and remove the waste and put it into the tank.

Proper waste filtration cannot be performed with the waste in the stocking filter. Put the ripped stocking filter into the tank, as well.



6. Filter the processing water to separate the processing waste and water.

- 1) Connect the special hose of the FP-100 to the filter joint on the tank.
Press into the hose until you hear it click.
- 2) Set the function lever to “FILTER”.
- 3) Turn ON (|) the power switch on the FP-100.
The processing water is filtered by the filter at the bottom of the tank and only water is sucked out into the FP-100.
All water will be sucked out from the tank in about one hour.
The timer turns OFF the power in one hour. (The time to turn the power off can be set by turning the dial.)
- 4) If the water is left in the tank, turn the power switch ON (|) again. After all water is sucked out from the tank, turn the switch OFF (O) .

NOTE

- For finer filtration, shake the tank up and down about 10 times and filter any excess water about 5 more minutes.

7. Dispose of the waste in the tank, following local governing ordinances.

Put a plastic bag, etc. over the tank and turn it upside down to remove the waste.

8. If the waste is stuck inside the tank, wash it out using a scrubber.**9. Throw away the filtered water in the FP-100.**

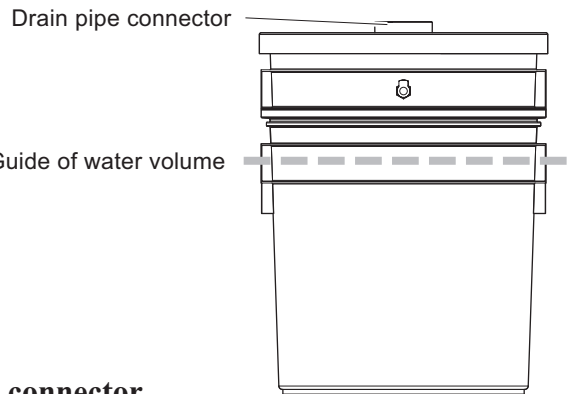
- 1) Remove the hose of the FP-100 from the filter joint and bring it around the drain outlet.
Disconnect the hose while pressing the button on the joint.
- 2) Set the function lever on the FP-100 to “DRAIN”.
- 3) Turn ON (|) the power switch on the FP-100.
The filtered water is drained. It takes a few minutes to drain all water.
- 4) When all water is drained, turn the switch OFF (O) and put the hose away.

NOTE

- If glass lenses have not been edged, the filtered water can be reused.
In such a case, put the hose disconnected from the filter joint in Step 1) into the tank and perform Steps 2) - 4) to return the filter water back into the tank. Do not put the lid over the hose then. The lid blocks the hose and it may cause a failure of the FP-100.

10. Put the water into the tank up to the position illustrated in the right figure.

Even when the filtered water is reused, add required water.



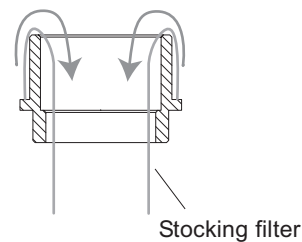
11. Put the lid on the tank.

12. Attach a new stocking filter to the drain pipe connector.

Stocking filters cannot be reused. Use a new one.

13. Set the drain cover as it was (see the figure of Step 4).

Place the drain cover in the drain pipe connector on the tank. Place it with the larger diameter side up.



14. Put the tank back into the cabinet.

15. Connect the feedwater hoses and drain pipe.

Press into the feedwater hose until you hear it click.

NOTE

- As for both PUMP 1 and PUMP 2, be sure to connect the corresponding hoses.

8.2.2 Replacing the water (when the optional FP-100 is not equipped)

Replace the processing water and stocking filter in the tank periodically. It is recommended that the water be replaced for every 100 lenses processed.

NOTE

- When the “Please Clean Tank & Pump and Replace Filter” message appears and the processing is stopped, replace the processing water and remove the waste accumulated on the drain pipe connector.

1. Take the tank out of the cabinet.

Open the cabinet and draw the tank toward you.

2. Disconnect the two feedwater hoses.

Press the red button on the hose to disconnect.

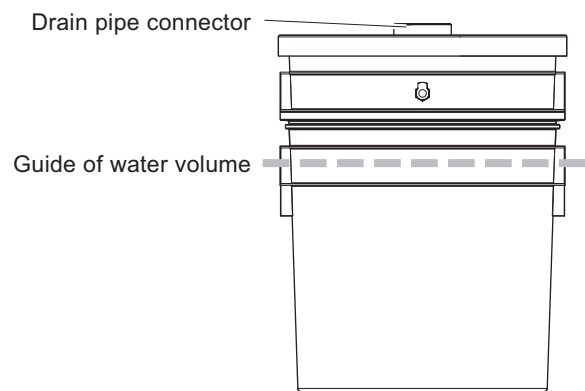
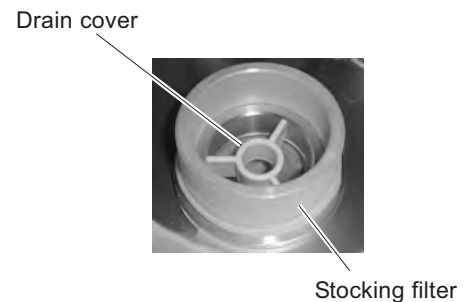
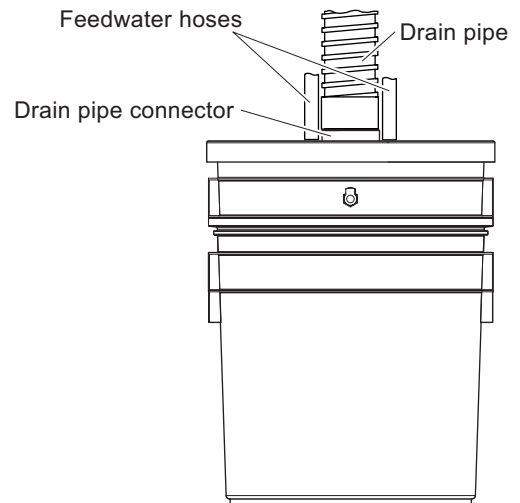
3. Disconnect the drain pipe from the tank.**4. Drop the stocking filter into the tank.**

1) Remove the drain cover from the drain pipe connector.
Drop the waste accumulated on top of the drain cover into the tank.

2) Bind the opening of the stocking filter so that the waste will not come out and put it in the tank.

5. Remove the lid from the tank.**6. Remove the layer at the top from the tank.****7. Dispose of the waste in the tank, following local governing ordinances.****8. Put the water into the tank up to the position illustrated in the right figure.**

The waste disposal becomes easier by spreading a poly sheet in the tank in advance.

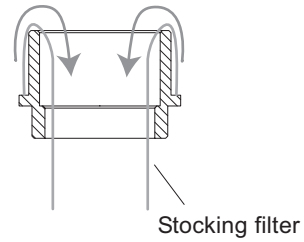
9. Put the lid on the tank.

10. Attach a new stocking filter to the drain pipe connector.

Stocking filters cannot be reused. Use a new one.

11. Set the drain cover as it was (see the figure of Step 4).

Place the drain cover in the drain pipe connector on the tank.
Place it with the larger diameter side up.

**12. Put the tank back into the cabinet.****13. Connect the feedwater hoses and drain pipe.**

Press into the feedwater hose until you hear it click.

NOTE

- As for both PUMP 1 and PUMP 2, be sure to connect the corresponding hoses.

8.3 Replacing the Water and Filter (230 V regions)

Replace the processing water and stocking filter in the tank periodically. It is recommended that the water be replaced for every 100 lenses processed.

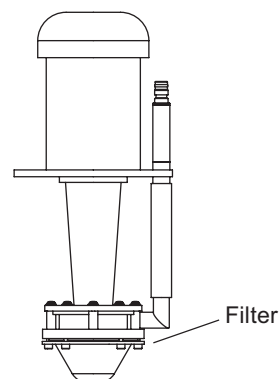
NOTE

- When the “Please Clean Tank & Pump and Replace Filter” message appears and the processing is stopped, replace the processing water and stocking filter, and remove the waste accumulated on the drain pipe connector.

- 1. Take the tank out of the cabinet.**
Open the cabinet and draw the tank toward you.
- 2. Disconnect the two feedwater hoses.**
Press the red button on the hose to disconnect.



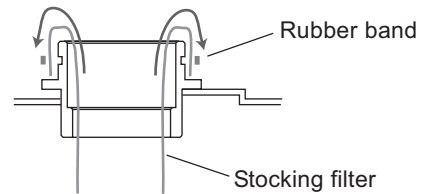
- 3. Disconnect the drain pipe from the tank.**
- 4. Remove the stocking filter held with a rubber band on the cover.**
Drop the stocking filter with the opening bound into the tank so that the processing waster will not come out.
- 5. Remove the lid of the tank.**
- 6. Drain the water skimmed off the surface.**
- 7. Dispose of the waste and stocking filter in the tank, following local governing ordinances.**
- 8. Wash the filter attached to the cover.**
Wash the filter in water to clean the attached processing waste.



9. Put the water into the tank.

Put the water up to 80% (about 5 cm from the top).

The waste disposal becomes easier by spreading a poly sheet in the tank in advance.

**10. Attach a new stocking.**

Pass the stocking filter from the inside of the cover into the metal fitting and hold it with a rubber band.

⚠ CAUTION

- Use the stocking filter only that NIDEK specifies.
Other stockings may become clogged or cause the feedwater hose clogged.
- The stocking filter is a disposable article. Do not reuse it.
Otherwise, it may be ripped or run and will not function as a filter.

11. Put the lid on the tank.**12. Put the tank back into the cabinet.****13. Connect the feedwater hoses and drain pipe.**

Press into the feedwater hose until you hear it click.

NOTE

- Each feedwater hose must be connected to its original position.

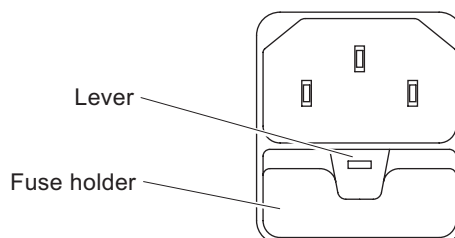
8.4 Replacing Fuses

If the instrument can not be activated though the power switch is turned ON, the fuses may be blown. Replace the fuses with new ones.

⚠ CAUTION

- Be sure to turn OFF the power switch and pull out the power cable before replacing fuses.
Otherwise, you may get an electrical shock.
- Use specified fuses only. (115 V AC → T 12.5 A 250 V)
(230 V AC → T 6.3 A 250 V)
Fuses other than the specified ones may cause fire.

1. Turn OFF (○) the power switch and disconnect the power cable from the wall outlet.
2. Disconnect the power cable from the inlet.
3. Remove the fuse holder under the inlet.
Pull out the fuse holder by pressing the lever.
- 4 Remove the old fuses from the holder and replace them with new ones.
5. Push the fuse holder into the body as before.



8.5 Cleaning the Exterior

When the exterior of the instrument such as the covers or panels become soiled, wipe them with a soft cloth. For stubborn soiling, immerse a cloth in a neutral detergent, wring it well, and wipe the area. Wipe off with a dry cloth to finish.

⚠ CAUTION

- Never use organic solvents such as paint thinner.
This could dissolve the surface.

8.6 Size Adjustment

When an edged lens is mounted into frames, the lens does not always fit. In such cases, adjust the size by inputting the compensation value as follows.

1. Call up the MENU screen.

Press .


```
*****
*           M   E   N   U           *
*           Length R:143.78 L:143.76 *
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Parameter exchange mode screen.

Press  again.

```
*****
*           Parameter exchange mode   *
*           Ver. MASTER V1.08.11     *
*           TRACER V2.01             *
*           TYPE : PL4               *
*****
→ LANGUAGE      : ENGLISH (S)
1) Size preset (PLA, MTL) : 0.00
2) Size preset (PLA, CEL) : 0.00
3) Size preset (GLS, MTL) : 0.00
```

3. Adjust the size.

1) Align the pointer (→) to the desired item with .

① To adjust the finished size of plastic, high index plastic, acrylic resin, trivex or polycarbonate lenses.

For metal frames: “Size preset (PLA, MTL)”

For celluloid frames: “Size preset (PLA, CEL)”

② To adjust the finished size of glass lenses.

For metal frames: “Size preset (GLS, MTL)”

For celluloid frames: “Size preset (GLS, CEL)”

2) Input the compensation value with  or .

The compensation value changes the finished lens diameter. To change the lens diameter, input the value.

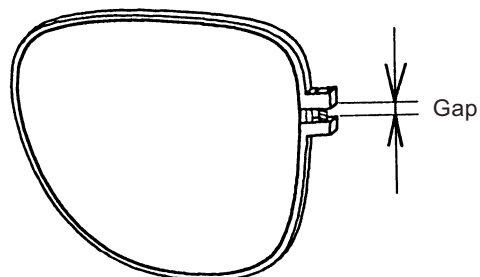
If the gap at the rim joint is A mm in a state that the processed glass lens is fit in a metal frame, divide the gap into the number π (approx. 3). The calculated value is an excess lens diameter.

e.g.

For the gap of 1 mm:

- $1/3 \times 1$ (mm) = approx. -0.3 (mm)

Subtract 0.3 mm from the indicated value of “Finish Size (GLS, bevel)”.



4. Go back to the Layout screen.

Press  twice.

5. Repeat Steps 1 - 4 until the lens size just fits the frame.

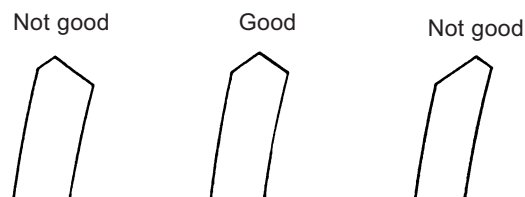
8.7 Adjusting the Bevel Position

When the finished bevel of a lens is displaced from the designated position, adjust the bevel position by changing the bevel constant.

1. Check the bevel position.

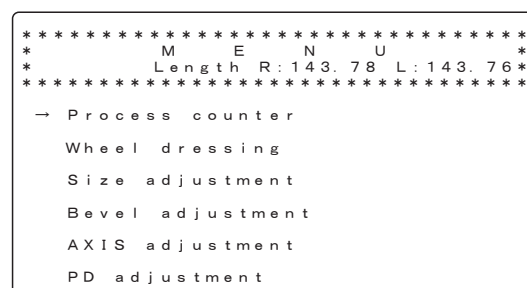
- 1) Read the traced data.
- 2) Process a lens of SPH: 0.0 D - +1.0 D.
- 3) Check the part where the edge is rather thin to see if the point of the bevel is in the middle of the edge.

If the bevel is leaning to either side, adjust it by the following procedure.




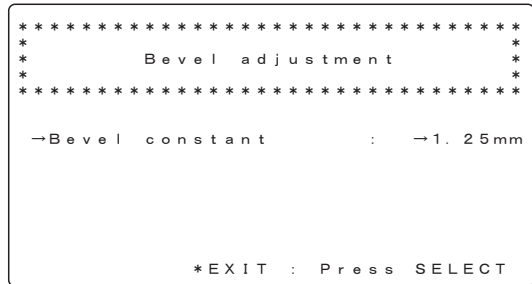
2. Call up the MENU screen.

Press .



3. Call up the Bevel adjustment screen.

Align the pointer (→) to “Bevel adjustment” and press .

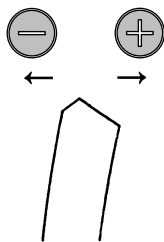
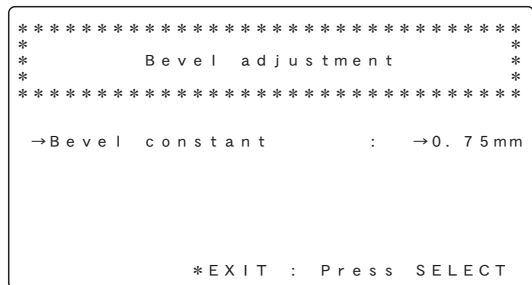


4. Input the compensation value.

To shift the bevel toward the front side of the lens, press .

To shift toward the rear side, press .

The arrow ← shows that the bevel is moved toward the front side, and → shows that it is moved toward the rear side.



5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the bevel comes to the right position.

8.8 Adjusting the Axis Shift


8.8.1 Adjusting the axis shift for unpolished lenses

When the finished axis angle of a lens is shifted from the designated angle, adjust it as follows.

1. Call up the MENU screen.

Press .

2. Call up the AXIS adjustment screen.

Align the pointer (→) to “AXIS adjustment” and press .

```

*****
*          AXIS adjustment          *
*****
*EXIT : Press SELECT

→PLA AXS const. (bevel) : 0.00
  PLA AXS const. (flat)  : 0.00
  PC AXS const. (bevel)  : 0.00
  PC AXS const. (flat)   : 0.00
  GLS AXS const. (bevel) : 0.00
  GLS AXS const. (flat)  : 0.00
    
```

3. Adjust the axis angle.

With polycarbonate and other lenses, adjust the axis angle separately for each processing type: beveling (Auto, Guided, and EX) and flat edging (Flat/Rimless).

- | | Item |
|--|------------------------|
| • For beveling of polycarbonate or trivex lenses: | PC AXS const. (bevel) |
| • For flat edging of polycarbonate or trivex lenses: | PC AXS const. (flat) |
| • For beveling of glass lenses (except for Type PLB) | GLS AXS const. (bevel) |
| • For flat edging of glass lenses (except for Type PLB) | GLS AXS const. (flat) |
| • For beveling of lenses other than polycarbonate, trivex or glass: | PLA AXS const. (bevel) |
| • For flat edging of lenses other than polycarbonate, trivex or glass: | PLA AXS const. (flat) |

Add the compensation value to the AXIS constant value indicated on the screen to adjust the axis angle.

e.g.

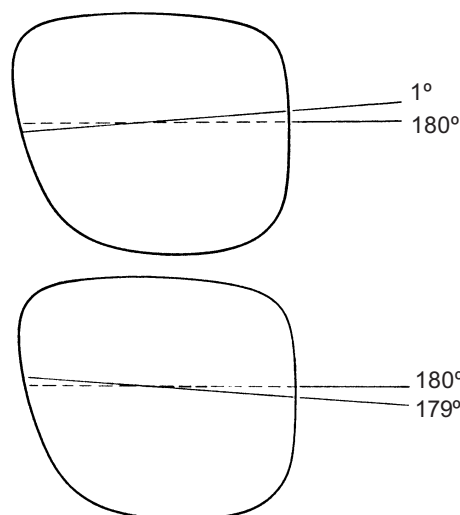
If the finished axis angle became 1° while the prescribed angle was 180°, add 1.00 to the present value.

Setting value: +2.00 → +3.00

e.g.

If the finished axis angle became 179° while the prescribed angle was 180°, subtract 1.00 from the present value.

Setting value: +2.00 → +1.00



8.9 Adjusting the Lens Margin Allowed for Finishing


The lens margin is compensated by the following procedure.

1. Call up the MENU screen.

Press .


```
*****
*           M   E   N   U           *
*           Length R: 143.78 L: 143.76 *
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Size adjustment screen.

Align the pointer (→) to “Size adjustment” and press .

```
*****
*           Size adjustment           *
*****
*EXIT : Press SELECT
→Finish Size (PLA, bevel) : 0.00mm
   Finish Size (PLA, flat) : 0.00mm
   Finish Size (PC , bevel) : 0.00mm
   Finish Size (PC , flat) : 0.00mm
   Finish Size (GLS, bevel) : 0.00mm
   Finish Size (GLS, flat) : 0.00mm
```

3. Adjust the lens margin.

1) Align the pointer (→) to the desired item with .

```
   Finish Size (GLS, flat) : 0.00mm
   Rough Size (PLA, bevel) : 0.00mm
   Rough Size (PLA, flat) : 0.00mm
   Rough Size (PC, bevel) : 0.00mm
   Rough Size (PC, flat) : 0.00mm
   Rough Size (GLS, bevel) : 0.00mm
→Rough size (GLS, flat) : 0.00mm
   Rough Size (HPL, bevel) : 0.00mm
```

① To adjust the beveled lens margin.

For plastic or acrylic resin lenses:

“Rough size (PLA, bevel)”

For polycarbonate or trivex lenses:

“Rough size (PC, bevel)”

For glass lenses:

“Rough size (GLS, bevel)” (except for Type PLB)

For high index plastic lenses:

“Rough size (HPL, bevel)”

② To adjust the flat edged lens margin (including grooved lens).

For plastic or acrylic resin lenses:

“Rough size (PLA, flat)”

For polycarbonate or trivex lenses:

“Rough size (PC, flat)”

For glass lenses:

“Rough size (GLS, flat)” (except for Type PLB)

For high index plastic lenses:

“Rough size (HPL, flat)”

2) Input the compensation value with  or .

Adding the value will increase the lens margin allowed for finishing.

4. Go back to the MENU screen.

Press .

5. Go back to the Layout screen.

Press  twice.

8.10 PD Adjustment


If the PD value input on the Layout screen does not agree with the PD of the finished lens, adjust the PD amount of the finished lens by the following procedure.

1. Call up the MENU screen.

Press .



```
*****
*           M E N U           *
*      Length R:143.78 L:143.76*
*****
→ Process counter
  Wheel dressing
  Size adjustment
  Bevel adjustment
  AXIS adjustment
  PD adjustment
```

2. Call up the PD adjustment screen.

Align the pointer (→) to “PD adjustment” and press .

```
*****
*           P D adjustment      *
*****
*EXIT : Press SELECT
→PD constant                :+0.50mm
  Frame Tilt Angle (flat)   : 5.0°
```

3. Adjust the PD.

Input the compensation value with  or .

Adding the value will increase the finished PD.

e.g.

When the finished PD becomes 65.5 by inputting PD: 66.0, add 0.50 to the present value.

4. Go back to the MENU screen.

Press .

5. Go back to the Layout screen.

Press  twice.

8.11 Adjustment for Polishing


8.11.1 If part of an edge is left unpolished (Types PL4, PLB, and PLB-2R)

1. Call up the MENU screen.

Press .


```
*****
*           M E N U           *
*           Length R:143.78 L:143.76*
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Size adjustment screen.

Align the pointer (→) to “Size adjustment” and press .

```
*****
*           Size adjustment           *
*****
*EXIT : Press SELECT
→Finish Size (PLA, bevel) : 0.00mm
   Finish Size (PLA, flat) : 0.00mm
   Finish Size (PC , bevel) : 0.00mm
   Finish Size (PC , flat) : 0.00mm
   Finish Size (GLS, bevel) : 0.00mm
   Finish Size (GLS, flat) : 0.00mm
```

3. Adjust the amount by which a lens is pressed against the wheel.

1) Align the pointer (→) to the item with .

- ① For polishing beveled edges of plastic, high index plastic or acrylic resin lenses: “Polish level (PLA, bevel)”
- ② For polishing flat edges of plastic, high index plastic or acrylic resin lenses: “Polish level (PLA, flat)”
- ③ For polishing beveled edges of polycarbonate or trivex lenses: “Polish level (PC, bevel)”
- ④ For polishing flat edges of polycarbonate or trivex lenses: “Polish level (PC, flat)”

```
Polish Size (PC, flat) : 0.00mm
Polish Size (HPL, bevel) : +1.00mm
Polish Size (HPL, flat) : 0.00mm
POL Differential (PC) : 0.00mm
Polish level (PLA, bevel) : 0.00mm
Polish level (PLA, flat) : 0.00mm
→Polish level (PC, bevel) : 0.00mm
Polish level (PC, flat) : 0.00mm
```

2) Input the compensation value with  or .

If the value increases, the pressed amount against the wheel also increases.

NOTE

- If a large amount is added at once, the polished edge may become rough. Increase the amount by 0.1 mm increments and check the polished edge each time the base value is changed.

Furthermore, never increase the constant value to 0.5 mm or more.

4. Go back to the MENU screen.

Press .

5. Go back to the Layout screen.



Press  twice.

6. Repeat Steps 1 - 5 until the whole edge is polished evenly.*1

7. Check the finished size after polishing.

Check each material lens for beveling and flat edging (only flat edging of Type PL4).

1) Call up the $\phi 45$ internal data.

Press  while pressing  on the Layout screen.

2) Perform polishing of beveling and flat edging.

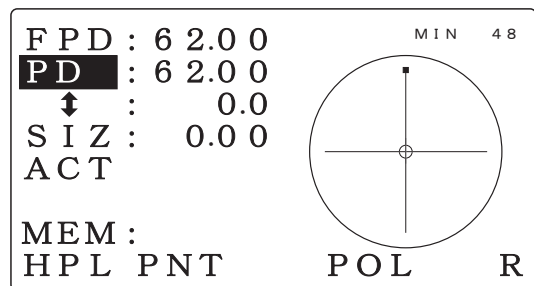
Leave the Size indication at 0.

3) Check the finished size.

If the processed lens diameter is as follows, it is proper.

Beveled lens: 45.00 - 45.10 mm (dia.)

Flat edged lens: 45.00 - 45.10 mm (dia.)




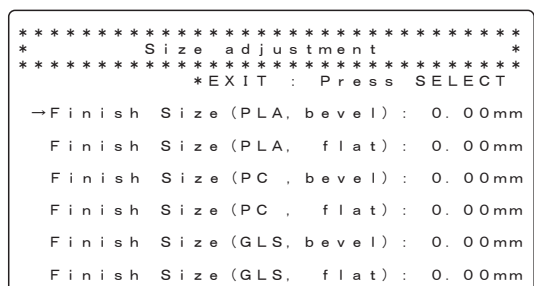
8. If the finished lens size is too large or too small, adjust the polishing size.

1) Call up the MENU screen.

Press .

2) Call up the Size adjustment screen.

Align the pointer (→) to “Size adjustment” and press .



*1 If the lens edge is not polished completely even though the constant value was adjusted, the axis angle may have shifted while the edge was being polished. In such a case, input the compensation value indicated at “POL AXS const. (bevel)” or “POL AXS const. (flat)” as described in “8.11.3 Axis shift adjustment for polished lenses” (p.8-24).

3) Align the pointer (→) to the desired item with ▼.

① To adjust the beveled lens margin.

For plastic or acrylic resin lenses: “Polish size (PLA, bevel)”

For polycarbonate or trivex lenses: “Polish size (PC, bevel)”

For high index plastic lenses: “Rough size (HPL, bevel)”

② To adjust the flat edged lens margin (including grooved lens).

For plastic or acrylic resin lenses: “Polish size (PLA, flat)”

For polycarbonate or trivex lenses: “Polish size (PC, flat)”

For high index plastic lenses: “Polish size (HPL, flat)”

4) Input the compensation value with ⊕ or ⊖.

e.g.

If the processed lens diameter became 45.5 mm, subtract 0.50 from the present value.

Setting value:

0.00 mm → -0.50 mm

Rough size (HPL, flat)	: +1.00mm
Polish size (PLA, bevel)	: 0.00mm
Polish size (PLA, flat)	: +1.00mm
Polish size (PC, bevel)	: +1.00mm
Polish size (PC, flat)	: 0.00mm
Polish size (HPL, bevel)	: +1.00mm
→Polish size (HPL, flat)	: 0.00mm
POL Differential (PC)	: 0.00mm

5) Go back to the MENU screen.

Press .

6) Go back to the Layout screen.

Press  twice.

9. Repeat Steps 7 - 8 until the correct lens size is achieved.


8.11.2 If the front edge or rear edge is left unpolished (Types PLB and PLB-2R)

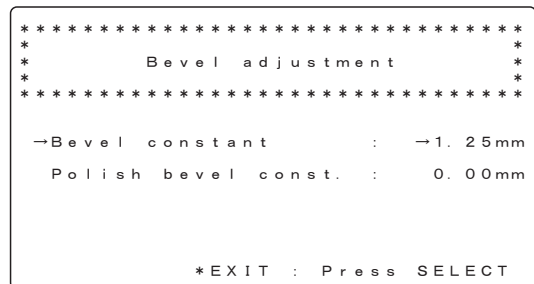
The polished bevel position is adjusted by the following procedure.

1. Call up the MENU screen.

Press .

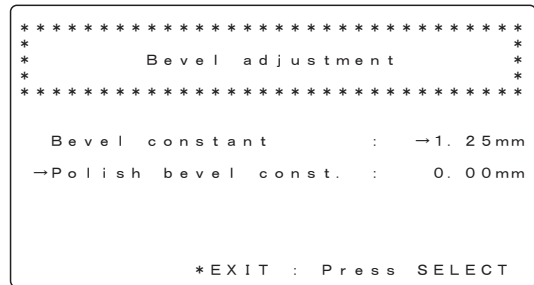
2. Call up the Size adjustment screen.


Align the pointer (→) to “Bevel adjustment” and press .




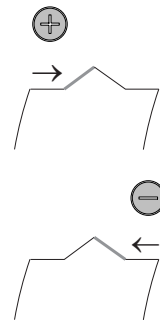
3. Adjust the polished bevel position.

1) Align the pointer (→) to “Polish bevel const.”.



2) Input the compensation value.
If the beveled edge on the lens front side is left unpolished:
⇒ Press .

If the beveled edge on the lens rear side is left unpolished:
⇒ Press .



4. Go back to the MENU screen.

Press .

5. Go back to the Layout screen.

Press  twice.

6. Repeat Steps 1 - 5 until both sides of the edge are polished properly.

8.11.3 Axis shift adjustment for polished lenses (Types PL4, PLB, and PLB-2R)

If the lens edge is not polished completely even after adjustment is made with “POL Differential”, the axis angle may be shifted. Perform the adjustment of the axis angle by the following procedure.

1. Check the state of the polished lens.

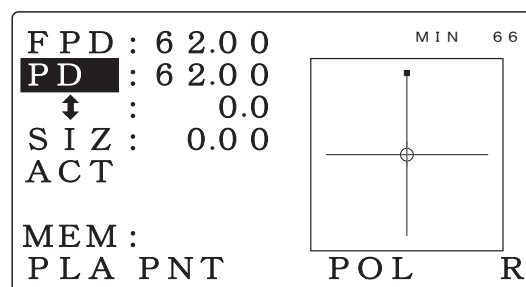
Check beveling and flat edging (only flat edging with of PL4).

- 1) Call up the 45 internal data.
Press while pressing on the Layout screen.

- 2) Perform beveling or polishing of the flat edge.

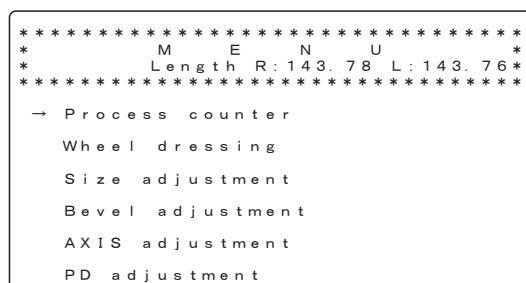
Leave the Size indication at 0.

- 3) Check the state of the polished lens.
If the lens edge is not polished completely, perform the adjustment as follows.



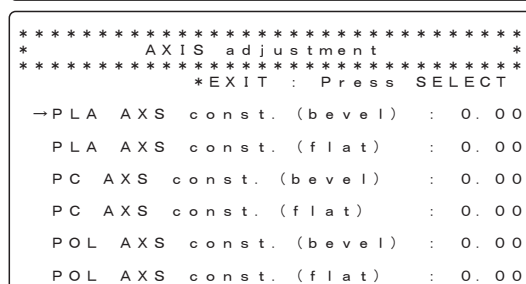
2. Call up the MENU screen.

Press .



3. Call up the AXIS adjustment screen.

- 1) Align the pointer (→) to “AXIS adjustment” and press .



4. Adjust the axis angle.

Adjust the axis values for bevel edging and flat edging.

Item

- For beveling: POL AXS const. (bevel)
- For flat edging: POL AXS const. (flat)

Add the compensation value to the AXIS constant value indicated on the screen to adjust the axis angle.

e.g.

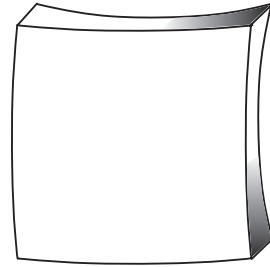
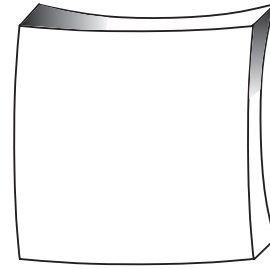
As seen from the front of the lens, the upper left side is not polished, add 0.50 to the present value.

Setting value: +1.00 → +1.50

e.g.

As seen from the sight from the front of the lens, the upper right side is not polished, subtract 0.50 from the present value.

Setting value: +1.00 → +0.50



5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the whole lens edge is polished.

8.12 Adjustment for Grooving (LE-9000EX Express only)


8.12.1 Setting the initial value for depth and width (LE-9000EX Express only)

1. Call up the MENU screen.

Press .

```
*****
*           M   E   N   U           *
*           Length R: 143.78 L: 143.76 *
*****
→ Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Groove & SFB adjustment screen.

Align the pointer (→) to “Groove & SFB adjustment” and press .

```

*Execute : Press SELECT
Process counter
Wheel dressing
Size adjustment
Bevel adjustment
AXIS adjustment
PD adjustment
→Groove & SFB adjustment
```

3. Align the pointer (→) to the desired item with



Groove Depth: . mm

Factory setting: 0.3 [mm]

Setting range: 0.0 - 0.8 [mm]

Groove Width: . mm

Factory setting: 0.6 [mm]

Setting range: 0.6 - 1.2 [mm]

```
*****
*           Groove & SFB adjustment           *
*****
*EXIT : Press SELECT
→Groove Depth           : 0.3mm
Groove Width            : 0.6mm
Groove Position         : 0.00mm
Safety Bevel Mode       : R
SFB Width (bvl, front) : +0.2mm
SFB Width (bvl, rear)  : +0.3mm
```

4. Change the initial value with  or .

5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

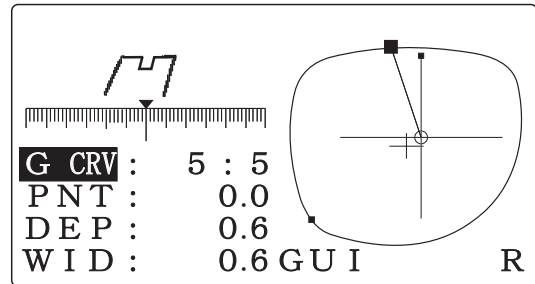
Press  twice.

8.12.2 Adjusting the groove position (LE-9000EX Express only)

When the finished groove of a lens is displaced from the designated position, adjust the groove position by changing the groove constant.

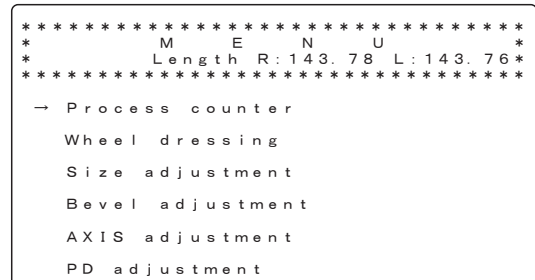
1. Check the groove position.

- 1) Perform grooving with G CRV: 5 : 5 and PNT: 0.0.
- 2) Check that the point of the groove is at the middle of the edge.
If the groove is leaning to either side, adjust it by the following procedure.




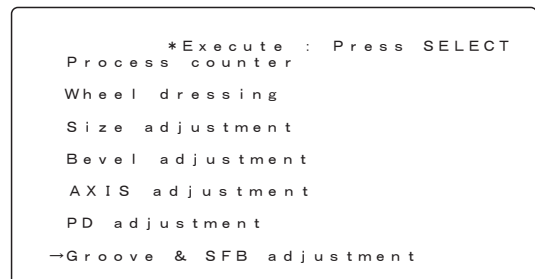
2. Call up the MENU screen.

Press .

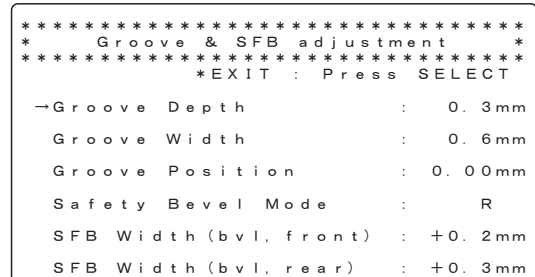


3. Call up the Groove & SFB adjustment screen.

Align the pointer (→) to “Groove & SFB adjustment” and press .




4. Align the pointer (→) to “Groove Position”.

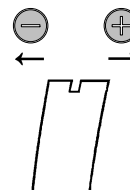


5. Input the compensation value of the groove position.

To shift the groove toward the front side of the lens, press .

To shift toward the rear side, press .

The arrow ← shows that the groove is moved toward the front side and → shows that it is moved toward the rear side.



6. Go back to the MENU screen.

Press .

7. Go back to the Layout screen.

Press  twice.

8. Repeat Steps 1 - 7 until the groove position comes to the right position.

8.12.3 Adjusting the groove depth (LE-9000EX Express only)

8.12.3.1 Groove depth is not made as designated (LE-9000EX Express only)


Groove depth should be made evenly. However, if the grooving is not made at the designated depth, adjust it by changing the constant value of the chamfering wheel.

1. Call up the MENU screen.

Press .

```
*****
*           M   E   N   U           *
*           Length R:143.78 L:143.76*
*****
→ Process counter
Wheel dressing
Size adjustment
Bevel adjustment
AXIS adjustment
PD adjustment
```

2. Call up the Groove & SFB adjustment screen.

Align the pointer (→) to “Groove & SFB adjustment” and press .

```
*Execute : Press SELECT
Process counter
Wheel dressing
Size adjustment
Bevel adjustment
AXIS adjustment
PD adjustment
→Groove & SFB adjustment
```



3. Align the pointer (→) to “SFB wheel height”.

```

*****
* Groove & SFB adjustment *
*****
*EXIT : Press SELECT

-Groove Depth      : 0.3mm
Groove Width      : 0.6mm
Groove Position   : 0.00mm
Safety Bevel Mode : R
SFB Width (bvl, front) : +0.2mm
SFB Width (bvl, rear)  : +0.3mm
    
```

4. Input the compensation value of SFB wheel height.

To make the groove shallower, press .
 To make the groove deeper, press .

```

Groove Position   : 0.00mm
Safety Bevel Mode : R
SFB Width (bvl, front) : +0.2mm
SFB Width (bvl, rear)  : +0.3mm
SFB Width (flat, front) : +0.2mm
SFB Width (flat, rear)  : +0.3mm
-SFB Wheel Height  : 0.00mm
SFB Wheel Pos. (BVL, F) : 0.00mm
    
```

5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the correct groove depth is achieved.


8.12.3.2 Groove depth is not even (LE-9000EX Express only)

The axis angle of the chamfering wheel may be shifted. Perform the following adjustment.

1. Call up the MENU screen.

Press .


2. Call up the AXIS adjustment screen.


Align the pointer (→) to “AXIS adjustment” and press .

```

*****
* AXIS adjustment *
*****
*EXIT : Press SELECT

-PLA AXS const. (bevel) : 0.00
PLA AXS const. (flat)   : 0.00
PC AXS const. (bevel)  : 0.00
PC AXS const. (flat)   : 0.00
GLS AXS const. (bevel) : 0.00
GLS AXS const. (flat)  : 0.00
    
```

3. Align the pointer (→) to “Groove & SFB AXS const” with .

3. Align the pointer (→) to “PLA GROOVE AXS const” or “PC GROOVE AXS const” with
.

- ① Groove depth of polycarbonate or trivex lenses is uneven:
Specify “PC GROOVE AXS const”.
- ② Groove depth of other lenses is uneven:
Specify “PLA GROOVE AXS const”.

PC AXS const. (flat)	: 0.00
GLS AXS const. (bevel)	: 0.00
GLS AXS const. (flat)	: 0.00
POL AXS const. (flat)	: 0.00
PLA GROOVE AXS const	: 0.00
PLA SFB AXS const	: 0.00
→PC GROOVE AXS const	: 0.00
PC SFB AXS const	: 0.00

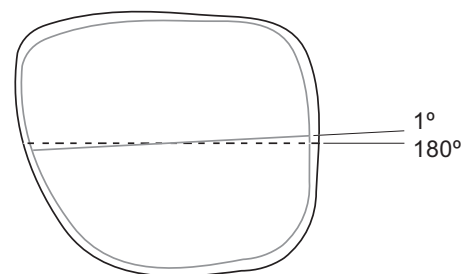
4. Adjust the axis angle.

Add the compensation value to the AXIS constant value indicated on the screen to adjust the axis angle.

e.g.

If the finished axis angle became 1°, add 1.00 to the present value.

Setting value: +2.00 → +3.00



5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the groove depth becomes even.

8.13 Adjustment for Chamfering (LE-9000EX Express only)


8.13.1 Setting the SFB mode and chamfering amount (LE-9000EX Express only)

1. Call up the MENU screen.

Press .

```
*****
*           M   E   N   U           *
*           Length R:143.78 L:143.76*
*****
-> Process counter
   Wheel dressing
   Size adjustment
   Bevel adjustment
   AXIS adjustment
   PD adjustment
```

2. Call up the Groove & SFB adjustment screen.

Align the pointer (→) to “Groove & SFB adjustment” and press .

```
*Execute : Press SELECT
Process counter
Wheel dressing
Size adjustment
Bevel adjustment
AXIS adjustment
PD adjustment
->Groove & SFB adjustment
```

3. Align the pointer (→) to the desired item with



Safety Bevel Mode: F & R, R

Factory setting: R

F & R:

Chamfering both edges

R:

Chamfering the rear edge in beveling

Chamfering both edges in flat edging

SFB Width (bvl, front): . mm

Factory setting: +0.2 [mm]

This is a guide setting for the chamfering amount of the front SFB in beveling.

SFB Width (bvl, rear): . mm

Factory setting: +0.3 [mm]

This is a guide setting for the chamfering amount of the rear SFB in beveling.

SFB Width (flat, front): . mm

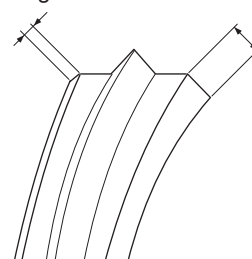
Factory setting: +0.2 [mm]

This is a guide setting for the chamfering amount of the front SFB in flat edging.

```
*****
* Groove & SFB adjustment *
*****
*EXIT : Press SELECT
->Groove Depth : 0.3mm
Groove Width : 0.6mm
Groove Position : 0.00mm
Safety Bevel Mode : R
SFB Width (bvl, front) : +0.2mm
SFB Width (bvl, rear) : +0.3mm
```

```
Groove Depth : 0.3mm
Groove Width : 0.6mm
Groove Position : 0.00mm
Safety Bevel Mode : R
SFB Width (bvl, front) : +0.2mm
SFB Width (bvl, rear) : +0.3mm
->SFB Width (flat, front) : +0.2mm
SFB Width (flat, rear) : +0.3mm
```

Front chamfering amount Rear chamfering amount

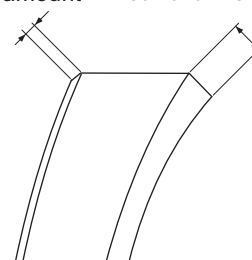


SFB Width (flat, rear): mm

Factory setting: +0.3 [mm]

This is a guide setting for the chamfering amount of the rear SFB in flat edging.

Front chamfering amount Rear chamfering amount



4. Change the setting with  or .

5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

8.13.2 Adjusting the chamfering amount (LE-9000EX Express only)

8.13.2.1 Safety bevel is not made as designated (LE-9000EX Express only)

Chamfering amount must be even in circumference. If chamfering is not performed at the designated width, however, adjust the chamfering amount by changing the compensation value of the SFB wheel position.

1. Set the parameter “SFB Width” to 0.0 mm.

See “8.13.1 Setting the SFB mode and chamfering amount” (p. 8-31).

① To adjust the front SFB in beveling:

Set the parameter “SFB Width (bvl, front)” to 0.0 mm.

② To adjust the rear SFB in beveling:

Set the parameter “SFB Width (bvl, rear)” to 0.0 mm.

③ To adjust the front SFB in flat edging:

Set the parameter “SFB Width (flat, front)” to 0.0 mm.

④ To adjust the rear SFB in flat edging:

Set the parameter “SFB Width (flat, rear)” to 0.0 mm.

2. Chamfer a lens.

3. Check the condition of the front SFB.

If the chamfering amount of the front safety bevel becomes 0 in the state that the chamfering wheel is in contact with the lens' front edge, it is normal. If not, correct the constant value of the safety bevel by the following procedure.

4. Input the compensation value of the SFB wheel position on the Groove & SFB adjustment screen.

1) Call up the MENU screen.

2) Align the pointer (→) to “Groove & SFB adjustment” and press .

3) Align the pointer (→) to the desired item.

① To adjust the front SFB in beveling:

Set the parameter “SFB Wheel Pos. (BVL, F)” to 0.0 mm.

② To adjust the rear SFB in beveling:

Set the parameter “SFB Wheel Pos. (BVL, R)” to 0.0 mm.


③ To adjust the front SFB in flat edging:


Set the parameter “SFB Wheel Pos. (FLT, F)” to 0.0 mm.

④ To adjust the rear SFB in flat edging:

Set the parameter “SFB Wheel Pos. (FLT, R)” to 0.0 mm.

4) Input the compensation value of the SFB wheel position.

To decrease the chamfering amount (move the wheel off the lens), press .

To increase the chamfering amount (close the wheel to the lens), press .

SFB Width (bvl, rear)	: +0.3mm
SFB Width (flat, front)	: +0.2mm
SFB Width (flat, rear)	: +0.3mm
SFB Wheel Height	: 0.00mm
SFB Wheel Pos. (BVL, F)	: 0.00mm
SFB Wheel Pos. (BVL, R)	: 0.00mm
-SFB Wheel Pos. (FLT, F)	: 0.00mm
SFB Wheel Pos. (FLT, R)	: 0.00mm

5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the chamfering wheel contacts the front edge of the lens and the front SFB becomes 0.

8. Reset “SFB Width” 0.00 mm set in Step 1 to the desired SFB value.


8.13.2.2 Chamfering amount is not even

If the chamfering amount is not even in circumference, the chamfering axis angle may be shifted. Make the adjustment of the chamfering axis angle.

1. Call up the MENU screen.

Press .

2. Call up the AXIS adjustment screen.

Align the pointer (→) to “AXIS adjustment” and press .

```

*****
*           AXIS adjustment           *
*****
*EXIT : Press SELECT

→PLA AXS const. (bevel) : 0.00
  PLA AXS const. (flat)  : 0.00
  PC AXS const. (bevel)  : 0.00
  PC AXS const. (flat)   : 0.00
  GLS AXS const. (bevel) : 0.00
  GLS AXS const. (flat)  : 0.00

```

3. Align the pointer (→) to “PLA SFB AXS const” or “PC SFB AXS const” with .

- ① Chamfering amount of polycarbonate or trivex lenses is uneven:
Specify “PC SFB AXS const”.
- ② Chamfering amount of other lenses is uneven:
Specify “PLA SFB AXS const”.

```

  PC AXS const. (flat)   : 0.00
  GLS AXS const. (bevel) : 0.00
  GLS AXS const. (flat)  : 0.00
  POL AXS const. (flat)  : 0.00
  PLA GROOVE AXS const   : 0.00
  PLA SFB AXS const      : 0.00
  PC GROOVE AXS const    : 0.00
→PC SFB AXS const       : 0.00

```

4. Adjust the axis angle.

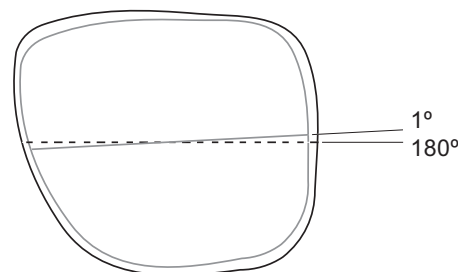
Add the compensation value to the AXIS constant value indicated on the screen to adjust the axis angle.

e.g. 1

If the axis angle of a chamfered lens became 1° as viewed from the lens' front surface, add 1.00 to the present value.
Setting value: +2.00 → +3.00

e.g. 2

If the axis angle of a chamfered lens became 1° as viewed from the lens' rear surface, subtract 1.00 from the present value.
Setting value: +2.00 → +1.00



5. Go back to the MENU screen.

Press .

6. Go back to the Layout screen.

Press  twice.

7. Repeat Steps 1 - 6 until the chamfering amount becomes even.

8.14 List of Consumable Articles

Articles	Order No.
Dressing stick for roughing wheel	41002-M612
Dressing stick for finishing wheel	41002-M611
Dressing stick for polishing wheel	40140-M610
Stocking filter	40377-M061
Fuse (115 V AC)	804-02-02149
Fuse (230 V AC)	804-02-02152

§9 SPECIFICATIONS

Processing system

Beveling	Auto:	Computer-calculated bevel
	Guided:	Manual bevel setting, which enables you to select either the curve profiling the front surface, the curve profiling the rear surface, the specified curve value, the position ratio or tilting amount
	EX	
Flat (rimless) edging	Flat edging	
	EX	
Grooving	Auto:	Computer-calculated groove position and curve
	Guided:	Manual-input groove position and curve
	EX	

Polishing (Types PL4, PLB, and PLB-2R)

Chamfering

* Grooving and chamfering are available to the LE-9000EX Express only.

Processing lenses

Glass, plastic, high index plastic, polycarbonate, acrylic resin, and trivex lenses (except for glass lenses of Type PLB)

Processing range

Max.	Lens size:	90 mm or less in diameter
	Layout range:	110 mm or less in diameter
Min. (without safety bevel)	In flat edging:	28 mm or more in diameter (when the lens adapter and lens clamp are replaced for half-eye lenses, up to min. 21 mm dia., vertical width: 19 mm)(when the optional pliable cup is used, up to min. 32 mm dia., vertical width: 19 mm)
	In beveling:	30 mm or more in diameter (when the lens adapter and lens clamp are replaced for half-eye lenses, up to min. 22 mm dia., vertical width: 20 mm)(when the optional pliable cup is used, up to min. 33 mm dia., vertical width: 20 mm)
Min. (with safety bevel)	In flat edging:	34 mm or more in diameter (when the lens adapter and lens clamp are replaced for half-eye lenses, up to min. 28 mm dia., vertical width: 25 mm)(when the optional pliable cup is used, up to min. 32 mm dia., vertical width: 25 mm)
	In beveling:	36 mm or more in diameter (when the lens adapter and lens clamp are replaced for half-eye lenses, up to min. 29 mm dia., vertical width: 26 mm)(when the optional pliable cup is used, up to min. 34 mm dia., vertical width: 26 mm)

* The processing range may change according to the processing mode.

Adjustable range

FPD:	30.0 - 99.5 mm (0.5 mm increments)
PD:	30.0 - 99.5 mm (0.5 mm increments)
1/2 PD:	15.0 - 49.75 mm (0.25 mm increments)
Vertical layout:	±15.0 mm (0.1 mm increments)
Size adjustment:	±9.95 mm (0.05 mm increments)
Bevel position:	±15.0 mm (0.1 mm increments)
Groove position:	±15.0 mm (0.1 mm increments)(LE-9000EX Express only)

Wheels

Type PC

Roughing wheel for plastic lenses:	100 mm in diameter, 22 mm in width
Roughing wheel for glass lenses:	100 mm in diameter, 17 mm in width
Finishing wheel:	100 mm in diameter, 23 mm in width

Type PL4

Roughing wheel for plastic lenses:	100 mm in diameter, 17 mm in width
Roughing wheel for glass lenses:	100 mm in diameter, 17 mm in width
Finishing wheel:	100 mm in diameter, 23 mm in width
Polishing wheel (Flat edging):	100 mm in diameter, 12 mm in width

Type PLB

Roughing wheel for plastic lenses:	100 mm in diameter, 22 mm in width
Finishing wheel:	100 mm in diameter, 17.5 mm in width
Polishing wheel (with bevel):	100 mm in diameter, 17.5 mm in width

Type PLB-2R

Roughing wheel for plastic lenses:	100 mm in diameter, 17 mm in width
Roughing wheel for glass lenses:	100 mm in diameter, 17 mm in width
Finishing wheel:	100 mm in diameter, 17.5 mm in width
Polishing wheel (with bevel):	100 mm in diameter, 17.5 mm in width

* Processing lens material and polishing for each wheel component

Type	Lens material	Polishing
PC	PLA/HPL/PC/GLS/ACR/TRX	Unavailable
PL4	PLA/HPL/PC/GLS/ACR/TRX	Flat edging except for glass lenses
PLB	PLA/HPL/PC/ACR/TRX	Beveling and flat edging except for glass lenses
PLB-2R	PLA/HPL/PC/GLS/ACR/TRX	Beveling and flat edging except for glass lenses

Lens chucking

Chucking method:	Electric system
Chucking pressure:	20 kgf (pre-operation) 30 - 60 kgf (during operation) Automatic setting according to lens material

Water supply system

Pump circulation

Other functions

Layout:	Active, passive, bifocal
Layout input item:	FPD (DBL) PD (1/2 PD) Vertical layout * Eye point layout function is available.
Retouching function:	Available (Memory function is available.)
Frame memory function:	Standard storable data 100 sets * The optional barcode scanner allows up to 500 sets of data to be stored.
External communication function:	RS-232C 2 ports built-in For connecting a PC For connecting the barcode scanner
Control outlet:	2 pcs. for pumps

Processing accuracy

Beveling size accuracy:	±0.1 mm (dia.) error when beveling (AUT) φ45 internal data
Flat edging size accuracy:	±0.1 mm (dia.) error when flat edging (NYL) φ45 internal data
Axis angle:	±1°

Whole system

Dimensions:	520 (W) × 484 (D) × 330 (H) mm (main body only)
Weight:	42 kg (main body only)
Power supply:	A. AC115 V 50/60 Hz B. AC230 V 50/60 Hz (Main supply voltage fluctuation should not exceed ±10% of the nominal voltage.) * Each setting of A and B is set in factory.
Power consumption:	1.5 kVA (max. at processing)
Acoustic noise:	Maximum 70 dB (A) according to Clause 1.7.4 of Machinery Directive



Environmental conditions (During transport/storage)

Temperature: -25°C - 70°C

Humidity: 10% - 100%

Pressure: 700 hPa - 1060 hPa

(The conditions above indicate the state of the instrument packed.)

Environmental conditions (During use)

Setting location: Indoor

Temperature: 5°C - 40°C

Humidity: Relative humidity does not exceed 50% at a maximum temperature of 40°C.

Pressure: 700 hPa - 1060 hPa

Altitude: Up to 1000 m at sea level

Transient overvoltages according to installation categories

(OVERVOLTAGE CATEGORIES)

II

Pollution degree

2 (IEC60664)

§10 ACCESSORIES

10.1 NIDEK-type Accessories

Suction cup	3 pcs.
Lens cup	5 pcs.
Double-coated adhesive tape	100 sheets
Half-eye lens cup (blue)	5 pcs.
Half-eye lens cup (white)	5 pcs.
Half-eye lens cup (pink)	5 pcs.
Double-coated adhesive tape for half-eye lenses	100 sheets
Half-eye adapter	1 pc.
Half-eye lens clamp	1 pc.
Dressing stick for the roughing wheel (WA80K)	1 pc.
Dressing stick for the finishing wheel (WA320K)	1 pc.
Dressing stick for the polishing wheel (WA4000)	1 pc.
Lens cup remover	1 pc.
Power cord	1 pc.
Calibration jig	1 pc.
Hex wrench (3 mm)	1 pc.
Hex wrench (4 mm)	1 pc.
Hex driver	1 pc.
Spare fuse	2 pcs.
Operator's manual	1 volume

10.2 WECO-type Accessories

Double-coated adhesive tape	100 sheets
Half-eye adapter	1 pc.
Half-eye lens clamp	1 pc.
Dressing stick for the roughing wheel (WA80K)	1 pc.
Dressing stick for finishing wheel (WA320K)	1 pc.
Dressing stick for the polishing wheel (WA4000)	1 pc.
Power cord	1 pc.
Calibration jig	1 pc.
Hex wrench (3 mm)	1 pc.
Hex wrench (4 mm)	1 pc.
Hex driver	1 pc.
Spare fuse	2 pcs.
Operator's manual	1 volume



10.3 SANTI-type Accessories

Double-coated adhesive tape	100 sheets
Half-eye lens clamp	1 pc.
Dressing stick for the roughing wheel (WA80K).....	1 pc.
Dressing stick for the finishing wheel (WA320K).....	1 pc.
Dressing stick for the polishing wheel (WA4000).....	1 pc.
Power cord	1 pc.
Calibration jig	1 pc.
Hex wrench (3 mm)	1 pc.
Hex wrench (4 mm)	1 pc.
Hex driver	1 pc.
Spare fuse	2 pcs.
Operator's manual	1 volume

APPENDIX A SUPPLEMENT

A.1 Selection of Layout

(1) Layout forms

Normal input
<p>The diagram shows a pair of glasses with a vertical dashed line through the bridge. Two vertical lines extend from the bridge to the optical centers of the lenses. The distance between these two vertical lines is labeled 'FPD'. The distance between the optical centers is labeled 'PD'. A vertical double-headed arrow on the left indicates the height of the optical center from the center of the rim.</p>
<p>This is the form to input FPD, PD and the height of the optical center from the center of the rim (↓).</p>
<p>See "4.3.2 Inputting layout data into the LE-9000EX Express/LE-9000DX Express" (p. 4-4).</p>

Inputting monocular PD (1/2PD)
<p>The diagram shows a pair of glasses with a vertical dashed line through the bridge. Two vertical lines extend from the bridge to the optical centers of the lenses. The distance from the bridge center to each optical center is labeled '1/2PD'. The total distance between optical centers is labeled 'PD'. A vertical double-headed arrow on the right indicates the height of the optical center from the center of the rim.</p>
<p>This is the form to input the distance from the frame bridge center to each eye point separately.</p>
<p>See *4 of p. 4-7.</p>

Inputting DBL
<p>The diagram shows a pair of glasses with a vertical dashed line through the bridge. Two vertical lines extend from the bridge to the optical centers of the lenses. The distance between the nasal ends of the right and left rims is labeled 'DBL'. The distance between optical centers is labeled 'PD'. A vertical double-headed arrow on the left indicates the height of the optical center from the center of the rim.</p>
<p>This is the form to input DBL (distance between the nasal ends of the right and left rims) instead of FPD.</p>
<p>See *3 of p. 4-6.</p>

Inputting height from lens a outline
<p>The diagram shows a single lens with a vertical line through the optical center. A horizontal line extends from the optical center to the bottom edge of the lens. The distance from the eye point to the bottom of the lens outline is labeled 'BT'. The distance between optical centers is labeled 'PD'.</p>
<p>This is the form to input the height of the optical center by measuring the distance from the eye point to the bottom of the lens outline.</p>
<p>See "4.3.2.1 Inputting height from a lens outline" (p. 4-8).</p>

Inputting eyepoint
<p>The diagram shows a single lens with a vertical line through the optical center. A horizontal line extends from the optical center to the bottom edge of the lens. The distance from the nasal and bottom sides of the lens outline to the optical center is labeled 'PD'.</p>
<p>This is the form to input the eyepoint as the optical center by the distance measured from the nasal and bottom sides of the lens outline.</p>
<p>See "4.3.2.4 Inputting eye point layout data" (p. 4-11).</p>

(2) Selection of lenses and layout

Bifocal lenses

See "4.3.2.2 Layout of bifocal lenses" (p. 4-9).

Progressive power lenses

See "4.3.2.3 Layout of progressive power lenses" (p. 4-10).

A.2 Selection of Blocking

Active mode

Blocking point Optical center Rim center

This is for blocking a lens at the optical center.

See "4.4.1 Blocking in active mode" (p. 4-12).

Passive mode

Blocking point: Optical center
Rim center

This is for blocking a lens at the rim center.

See "4.4.2 Blocking in passive mode" (p. 4-13).

Bifocal mode

Blocking point: 5 mm UP/ 5 mm OUTSIDE

This is for bifocal lenses. Block at the position of 5 mm above and 5 mm outside from the top line center of the segment with a lens cup.

See "4.4.3 Blocking bifocal lenses" (p. 4-14).

A.3 Selection of Processing

(1) Processing mode

Creating computer-calculated bevels

See "4.5.1.1 Auto processing mode"
(p. 4-17).

Creating bevels on EX lenses

See "4.5.1.4 EX lens processing mode"
(p. 4-27).

Flat edging

See "4.5.2.1 Flat (rimless) edging mode"
(p. 4-31).

Creating computer-calculated grooves (LE-9000EX Express only)

See "4.5.2.2 Auto grooving mode"
(p. 4-36).

EX lens grooving mode (LE-9000EX Express only)

See "4.5.2.4 EX lens grooving mode"
(p. 4-42).

Adjusting bevel position

Guided processing mode

Select "GUI".

Press .

Check the Bevel simulation display.

Adjust the bevel curve and bevel position.

Press .

See "4.5.1.2 Guided processing mode"
(p. 4-20).

EX lens flat edging

See "4.5.2.2 EX lens flat (rimless) edging mode" (p. 4-34).

Adjusting bevel position (LE-9000EX Express only)

Adjusting groove position

Select "NYL" and "GUI".

Press .

Check the Groove simulation screen.

Adjust the groove curve and groove position.

Press .

See "4.5.2.3 Guided grooving mode"
(p. 4-38).

Polishing lens edge



See "4.5.3.2 Polishing" (p. 4-48).

**Chamfering
(LE-9000EX Express only)**



See "4.5.3.3 Chamfering" (p. 4-49).

(2) Special processing

Finished lens is too large for frames



Retouching

Change the size value.



Press .

See "4.6 Checking the Lens Size" (p. 4-53).

In the case of half-eye frames

Message "Use chuck for half-eye lenses" appears.



Processing half-eye lenses

Replace the adapter set with the one for half-eye lenses.

See "4.5.3.1 Processing half-eye lenses" (p. 4-45).

APPENDIX B *ERROR CODE*

The instrument is provided with the self-diagnostic function and runs checks which constantly monitor the working state during operation. If any failure occurs, the instrument will stop automatically and show the error code on the display panel. In the event of a failure, inform of the error code as well as the symptoms of the instrument. The error code is essential to proper repair work.

The contents of each error code are as follows. As for the error code whose action is provided, follow its procedure before contacting NIDEK or your authorized distributor.

ERROR CODE	CONTENTS
0001	Processing data transmission error. Action: Check the cable from the RS-232C connector and connections of the peripheral devices.
0002	Processing data transmission error. Action: Check the cable from the RS-232C connector and connections of the peripheral devices.
0003	Received data nonconformance (during VCA communication) Action: Check if the received processing information is proper.
0107	Roughing is not completed.
0201	The feeler is not initialized. Action: Press <input type="checkbox"/> after moving the feeler to the center of the processing chamber by lifting. If the feeler cannot be moved to the center in relation to position with the lens, turn the power OFF. Then, move the feeler
0204	After the rear surface of a lens is measured, its front surface cannot be measured. Action: When the front surface is measured, hold the feeler down lightly.
0205	Data for lens measurement or lens measured result is abnormal. Action: Perform operation again from frame tracing.
0206	First data in lens shape measurement is abnormal.
0207	Data of the start and end in lens shape measurement does not agree. Action: Perform operation again from lens shape measurement by pressing <input type="checkbox"/>.
0208	When the rear surface of a lens is measured, the feeler is positioned beyond its measurable range.
0209	When the front surface of a lens is measured, the feeler is positioned beyond its measurable range.
0301	Y axis data for processing is abnormal. Action: Perform operation again from frame tracing.
0302	X axis data for processing is abnormal. Action: If an error occurs before processing, perform operation again from lens shape measurement by pressing <input type="checkbox"/>.
0401	The X, Y, or θ axis motor is abnormal.
0402	Initialization of the X axis motor is abnormal.
0403	Initialization of the Y axis motor is abnormal.
0404	Initialization of the θ axis motor is abnormal.
0408	Initialization of the F axis motor is abnormal. Action: Press <input type="checkbox"/> to clear the error message. Turn the power off and then on after moving the feeler to the center of the processing unit.



ERROR CODE	CONTENTS
0501	The chuck motor does not run.
0601	The chamfering/grooving wheel motor is abnormal (overcurrent).
0602	Initialization of the chamfering/grooving unit is abnormal.
0603	Processing end sensor error of the chamfering/grooving unit.
0604	Setting position of the processing end sensor of the chamfering/grooving unit is improper.
0801	CPU false interrupt error.
0802	CPU address error.
0803	CPU DMA bus error.
0900	EEPROM write error.
0901	Size constant in roughing is out of its specified range.
0902	Size constant is out of its specified range.
0903	Bevel position constant is out of its specified range.
0904	The wheel position parameter is out of its specified range.
0905	Frame memory verification error.
0906	Frame memory CRC check error.

APPENDIX C *GLOSSARY*

In this manual, the following terms are used to provide an easy understanding of the contents. Therefore, thoroughly understand them before reading the contents of this manual.

Active mode

This is for blocking a lens at the optical center.

Auto processing mode

In this mode, the bevel curve and bevel position are automatically calculated by the computer to determine the best values for processing.

Auto grooving mode

In this mode, the groove curve and groove position are automatically calculated by the computer to determine the best values for grooving. (LE-9000EX Express only)

Bifocal mode

This mode is for laying out bifocal lenses. In this mode, a lens is blocked at 5 mm above and 5 mm outside from the top line center of the segment with a lens cup by using a centering device.

Chamfering

This is the processing method to chamfer a lens edge of the rear surface or both surfaces before processing is completed. (LE-9000EX Express only)

DBL (Distance Between Lenses)

This represents the distance between the nasal ends of the right and left rims.

EX lens processing mode

This mode serves to process EX lenses. In this mode, the bevel curve will set to the curve of the rear surface.

EX lens grooving mode

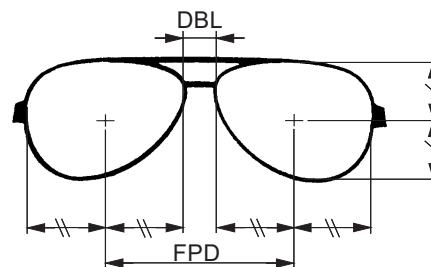
This mode serves to groove EX lenses for nylon frames. In this mode, the groove curve will set to the curve of the rear surface. (LE-9000EX Express only)

Eye point layout

This is the form to input the eye points as the optical center by the distance measured from the nasal and bottom sides of a lens outline. This form serves to specify the position of the eye point, which is marked on the dummy lenses, as the optical center.

FPD (Frame Pupillary Distance)

This represents the distance between the right and left rim centers. The rim centers are calculated by the boxing system.




Guided processing mode

In this mode, bevel curve and bevel position can be specified manually.

Guided grooving mode

In this mode, groove curve and groove position for nylon frames can be specified manually. (LE-9000EX Express only)

Half-eye lens processing

For frames whose vertical width is short, the mark of the optical center becomes , and as soon as processing starts, the “Use chuck for half-eye lens” message will appear and the instrument will stop temporarily. These indications mean that the lens adapter or lens clamp may contact the wheels. Replace the lens adapter, lens clamp and lens cup with the ones for half-eye lenses.

Memory function

This is the function which stores the traced data and layout data in the memory and reads them as necessary. The communication function and memory function cannot be used in parallel. Therefore, the memory function is available only when the parameter “Ext. interface” is set at “NONE”. The memory holds up to 100 sets of the traced and layout data.

Passive mode

This is for blocking a lens at the rim center.

Polishing

This is the processing method to polish a lens edge to save the time required to buff the lens edge after beveling or flat edging.

Simple frame changing mode

This is the mode to measure a lens shape at 1.5 mm inside of the bevel tip point.

Soft processing

This is the processing method to perform the roughing process by controlling the pressure applied to a lens precisely. Even though the processing time is extended a little, the processing sound and axis shift during processing are reduced.

Storage of the Initial screen

This is the function to store the items on the layout display, which appear at power-up.

TRX

One of the lens material settings. Used to process lenses that melt easily from heat such as a trivex lens.

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DECLARATION OF CONFORMITY

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Identification of product Lens Edger
Model No. LE-9000 Express
Starting from this serial number 200016

We herewith declare that the above mentioned products meet the provisions of the following EC Council Directives and Standards. All supporting documentations are retained under the premises of the manufacturer.

DIRECTIVES

General applicable directives:

Machinery Directive: COUNCIL DIRECTIVE 98/37EC of 22 June 1998 relating to machinery
EMC Directive: COUNCIL DIRECTIVE 89/336/EEC of 3 May 1989 relating to electromagnetic compatibility

Standards :

Harmonized Standards(published in the Official Journal of the European Communities)applicable to this product are :
EN1050, EN292-1, EN292-2, EN50082-1, EN55011, IEC60204-1, EN614-1, EN894-1, EN954-1

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Signed by

Yoshiaki Ohashi
Quality Executive Representative,
NIDEK Co., Ltd.