

NIDEK Toric IOL Calculator User Guide

WARNING

- If any serious device-related incident occurs, report it to Nidek and the competent authority in the country where the user or patient, or both reside.
-
-

Outline

NIDEK Toric IOL Calculator is a supplementary tool for doctors to use when selecting an optimal model for patients among NIDEK Toric IOLs.

Intended Use

NIDEK Toric IOL Calculator is software to calculate the astigmatic amount of a Toric IOL expected to be optimal for each patient with corneal astigmatism undergoing cataract surgery. Postoperative predictive corneal astigmatism is calculated using not only the amount of preoperative corneal astigmatism but also taking into account the amount of astigmatism induced during surgery. The cylindrical power of the Toric IOL and the fixed axis angle in the eye that are optimal for the correction of the postoperative predictive corneal astigmatism are calculated.

Intended User Profile

Ophthalmologists or personnel involved in medical practice under the ophthalmologists' instructions

As a minimum requirement, users must have general experience using software that runs on Windows OS.

Intended Use Environment

Medical facility

CAUTION

- If the device is used outside the specified use location, intended performance and security level cannot be maintained.
-

Access to NIDEK Toric IOL Calculator

It is suggested that NIDEK Toric IOL Calculator be used with the following Internet browsers. This software is available for both personal computers and tablets connected to the Internet.

- Microsoft Edge 133 or above, Chrome 133 or above, Firefox 135 or above, Safari 18.3 or above.

Connection to Network

If NIDEK Toric IOL Calculator is connected to other devices via the medical system network, ensure that there is no risk to patients, operators or third party. If any change is made to the network, also ensure that there is no risk to patients, operators or third party. In any case, it is recommended that the network administrator ensure that information security measures are proper by identifying, analyzing, and evaluating risks, and by implementing necessary security control.

Changes to the network include the following:

- Changes to network configuration
- Addition, deletion, update, and upgrade of the network components (hardware, software platform, software application)

* If you need information to ensure cybersecurity, contact Nidek or your authorized distributor.

Information regarding NIDEK Toric IOL Calculator Compatibility

Depending on the computer settings in use, improper screen display and print results may occur. In these cases, check the following and change the settings as necessary.

- Unicode (automatic selection) is used for character encoding.
- Cookies are enabled.
- JavaScript is enabled.
- The font size is set to default.
- The font type is set to standard.

Select Language and Country

After the software is activated successfully, select your language and country. After the selection, click “Submit” to move to the next screen “License Agreement”.

License Agreement

After reading the License Agreement, click “I accept” when you agree with the terms and conditions. The screen advances to the next screen (Calculator data entry screen).

Calculator Data Entry

(1) Patient and surgeon information

Enter “Patient name” and “Patient ID”.

Enter “Surgeon (Optional)” and “Notes (Optional)”.

Choose “Eye selection”, from either “OD (right eye)” or “OS (left eye)” using the pull-down menu.

(2) Keratometry

Select “K notation”, from either “Diopter” or “mm”.

(3) Anterior corneal surface

• Flat K1

Enter the measured corneal refractive power for the flattest meridian in the selected unit (D or mm).

The entry range is from 30.00 D to 55.00 D or from 6.14 mm to 11.25 mm.

• Flat K1 axis

Enter the measured Flat K1 axis.

The entry range is from 0° to 180°.

• Steep K2

Enter the measured corneal refractive power for the steepest meridian in the selected unit (D or mm).

The entry range is from 30.00 D to 55.00 D or from 6.14 mm to 11.25 mm.

• Steep K2 axis

When “Flat K1 axis” is entered, this value is automatically entered.

The screenshot shows the NIDEK Toric IOL Calculator interface. The top navigation bar includes 'Setting', 'Help', and 'Contact'. The main header displays the NIDEK logo and the title 'NIDEK Toric IOL Calculator'. The interface is divided into several sections:

- (1) Patient and surgeon information:** Includes fields for Patient name, Patient ID, Surgeon (Optional), and Notes (Optional). A dropdown menu for Eye selection is set to 'Not selected'.
- (2) Keratometry:** Features a radio button for 'K notation' with options for 'Diopter' (selected) and 'mm'.
- (3) Anterior corneal surface:** Contains input fields for Flat K1 (D), Flat K1 axis, Steep K2 (D), Steep K2 axis, Surgically induced astigmatism (SIA) (D), and Incision location.
- Posterior corneal surface:** A dropdown menu currently set to 'Not in use'.
- Biometry:** Includes a dropdown for 'SE IOL power' (set to 'Not selected'), 'Axial length' (mm), and 'Measurement method' (set to 'Axial length measurement (optical)'). An 'A-constant' field is set to '119.7'.

A blue 'Calculate' button is located at the bottom center. On the right side, the 'Calculation results' section displays a circular diagram with degree markings (0°, 45°, 90°, 135°, 180°, 225°, 270°) and a table of results:

| Preoperative corneal astigmatism | | Surgically induced astigmatism (SIA) | | Predicted corneal astigmatism | |
|----------------------------------|-------------|--------------------------------------|------|-------------------------------|-----|
| ICL | | Residual astigmatism | | | |
| ICL model | Orientation | Cylinder | Axis | Axis flip | |
| --- | --- | --- | --- | --- | --- |
| --- | --- | --- | --- | --- | --- |
| --- | --- | --- | --- | --- | --- |

Buttons for 'Clear' and 'Print' are located at the bottom right of the results section.

Calculator data entry screen

- **Surgically induced astigmatism (SIA)**

Enter a value in diopters for the expected change in corneal astigmatism induced by the surgical incision.

The entry range is from 0.00 D to 2.00 D.

- **Incision location**

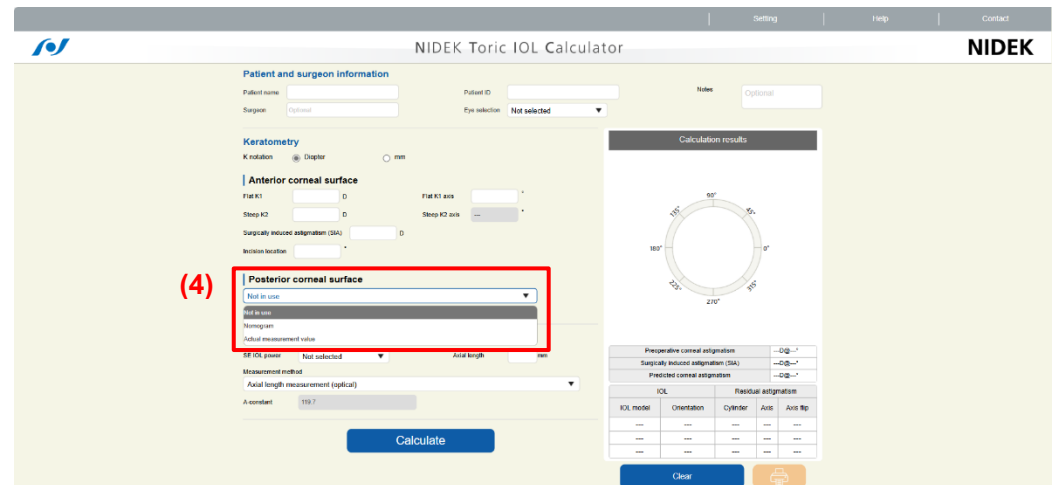
Enter “Incision location” in degrees. The entry range is from 0° to 359°.

- * **About corneal refractive index**

When the measured value of the posterior corneal surface is not used for calculation, the conversion refractive index 1.3375 is used.

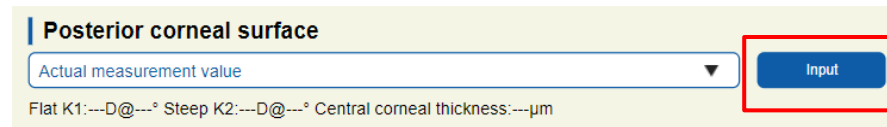
- (4) Posterior corneal surface**

Select “Not in use”, “Nomogram^{*1)}”, or “Actual measurement value” from the pull-down menu.

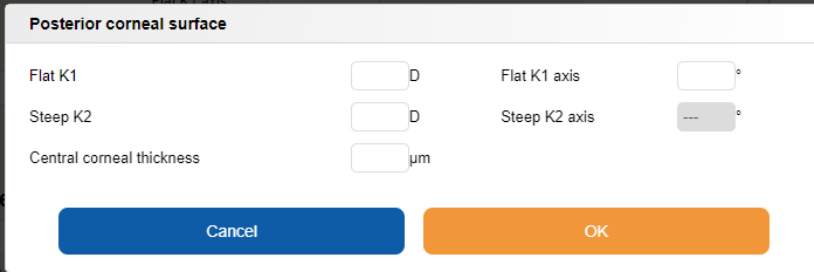


Calculator data entry screen _ Posterior corneal surface

When entering the measured value of the posterior corneal surface, select “Actual measurement value”, and then click “Input”.



Clicking “Input” displays a pop-up window as shown on the right. Enter values for the posterior corneal surface.



Posterior corneal surface

Flat K1 D Flat K1 axis °

Steep K2 D Steep K2 axis °

Central corneal thickness μm

Cancel OK

- **Flat K1**

Enter the measured corneal refractive power for the flattest meridian in the selected unit (D or mm).

The entry range is from -3.00 D to -10.00 D or from 4.00 mm to 13.33 mm.

- **Flat K1 axis**

Enter the measured Flat K1 axis. The entry range is from 0° to 180°.

- **Steep K2**

Enter the measured corneal refractive power for the steepest meridian in the selected unit (D or mm).

The entry range is from -3.00 D to -10.00 D or from 4.00 mm to 13.33 mm.

- **Steep K2 axis**

When “Flat K1 axis” is entered, this value is automatically entered.

- **Central corneal thickness**

Enter “Central corneal thickness” in μm. The entry range is from 200 μm to 999 μm.

- * **About corneal refractive index**

When the measured value of the posterior corneal surface is used for calculation, the corneal refractive index 1.3760 is used.

(5) Biometry

- SE IOL power

Select the power from the pull-down menu that resulted from use of the IOL power formula.

- Axial length

Enter “Axial length” in mm.

- Measurement method

Select one from “Axial length measurement (optical)”, “Axial length measurement (ultrasound)”, “Surgeon factor (SF)”, “Personal A-constant”, or “Personal ACD”, using the pull-down menu. When selecting “Surgeon factor (SF)”, “Personal A-constant”, or “Personal ACD”, also enter the constant (to the second decimal place) below the Measurement method field.

(6) Calculate*2)

Make sure the entered data is correct, and click “Calculate”. The results are displayed in the Calculation results field on the right.

The screenshot shows the NIDEK Toric IOL Calculator interface. The top navigation bar includes 'Setting', 'Help', and 'Contact' links. The main header displays the NIDEK logo and the title 'NIDEK Toric IOL Calculator'. The interface is divided into several sections: 'Patient and surgeon information', 'Keratometry', 'Anterior corneal surface', 'Posterior corneal surface', and 'Biometry'. The 'Biometry' section is highlighted with a red box and a red circle containing the number 5. It contains fields for 'SE IOL power' (set to 'Not selected'), 'Axial length' (set to 'mm'), and 'Measurement method' (set to 'Axial length measurement (optical)'). Below these fields is an 'A-constant' field with the value '119.7'. A blue 'Calculate' button is located below the Biometry section, with a red circle containing the number 6 next to it. To the right of the Biometry section is the 'Calculation results' field, which displays a circular diagram of the eye and a table of results. The table includes fields for 'Preoperative corneal astigmatism', 'Surgically induced astigmatism (SIA)', 'Predicted corneal astigmatism', and 'Residual astigmatism'. The 'Residual astigmatism' table has columns for 'IOL model', 'Orientation', 'Cylinder', 'Axis', and 'Axis flip', with rows of dashes indicating results.

Calculator data entry screen _ Biometry

(7) Change image orientation

The image orientation can be changed by clicking the arrows.

Adjust the orientation according to the viewpoint during surgery.

(8) Calculation results

Three types of Toric IOL models are displayed as calculation results. Select one of the models to be used.

(9) Clear

Clicking “Clear” displays a message indicating “Delete the entered items?”. Then, selecting “OK” deletes all the entered data and calculation results.

(10) Printing

Clicking the print icon prints a hard copy of the calculation results.

*If a dialog box “This website has been blocked from automatically printing.” appears, click “Allow”.

The screenshot shows the NIDEK Toric IOL Calculator interface. The top navigation bar includes 'Setting', 'Help', and 'Contact' links. The main content area is divided into several sections: 'Patient and surgeon information', 'Keratometry', 'Anterior corneal surface', 'Posterior corneal surface', and 'Biometry'. The 'Calculation results' section is highlighted with a red box (7) and contains a circular diagram with a central yellow circle and a red arrow pointing to a blue box with two arrows (8). Below the diagram is a table of calculation results. A red box (9) highlights the 'Clear' button, and a red box (10) highlights the print icon.

| Preoperative corneal astigmatism | | 2.47D@165° | | |
|--|-------------|----------------------|------|-----------|
| Surgically induced astigmatism (SIA) | | 0.38D@90° | | |
| Predicted corneal astigmatism | | 1.73D@165° | | |
| IOL | | Residual astigmatism | | |
| IOL model | Orientation | Cylinder | Axis | Axis flip |
| <input type="radio"/> NP-T3 | 165° | +0.74D | 165° | --- |
| <input checked="" type="radio"/> NP-T4 | 165° | +0.25D | 165° | --- |
| <input type="radio"/> NP-T5 | 165° | +0.25D | 75° | Flipped |

Calculator data entry screen _ Calculation results

Error Message

| Error indication | Causes and remedies |
|------------------|---|
| 500Error | No configuration file is found, or internal error occurred. Activate the software again later. |

Related Documents

*1) Nomogram:

Douglas D. Koch, et al. Correcting astigmatism with toric intraocular lenses: Effect of posterior corneal astigmatism. J Cataract Refract Surg. 2013; 39: 1803-1809

*2) Formula:

Han Bor Fam, Kooi Ling Lim. Meridional analysis for calculating the expected spherocylindrical refraction in eyes with toric intraocular lenses. J Cataract Refract Surg. 2007; 33:2072-2076

OSS License Information





<https://www.nidek-intl.com/aboutus/entry-4677.html/>

UDI Information

UDI Information Display / GTIN+SW Version Information

- UDI : (01)04987669203750(10)1.3
- GTIN : 04987669203750
- Ver. : 1.3

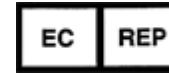
Symbols

| Symbol | Description |
|---|---|
|  | Manufacturer and the date of manufacture |
|  | Authorized representative in the European Community |
|  | Swiss Authorized Representative |
|  | Medical device |



NIDEK CO., LTD.
34-14 Maehama, Hiroishi-cho,
Gamagori, Aichi 443-0038, JAPAN
2025-07-28

URL: <https://www.nidek.com>



NIDEK S.A.
Ecoparc, rue Benjamin Franklin,
94370 Sucy En Brie, FRANCE



MedEnvoy Switzerland
Gotthardstrasse 28, 6302 Zug, Switzerland

