

Starting to use the AcrySof® IQ Toric IOL (SN6ATT) A-Constant FAQs

The comments below apply only to Alcon's single piece IOLs.

Differences between lens constants for other lens types may not be the same.

1. What lens constant do I use initially?

Estimate your own personalized lens constant for the AcrySof® IQ Toric IOL (SN6ATT). To calculate this, we recommend starting with a personalized A-Constant for the AcrySof® IQ IOL (SN60WF), which is the closest monofocal lens to the SN6ATT. Add 0.3 to the value for the SN60WF IOL. (This matches the difference in labeled A-constants for the 2 lens types.) Your personalized A-constant for the SN6ATT may not match the number on the box exactly. Make sure you keep using the same biometry and calculation methods with the new lens as you did when developing the reference personalized A-constant.

2. What if I have never used the SN60WF AcrySof® IQ lens?

It is recommended that A-constant determination and implant experience be first obtained with the SN60WF prior to attempting implantation of the SN6ATT IOLs. However, personalized A-Constants can be estimated from other Alcon® IOLs using the following chart, which corresponds to the differences in the A-Constant values on the lens packaging. Keep in mind when making the conversion that it is essential that you keep using the same biometry and calculation method.

3. Why is the A-Constant for the SN6ATT higher than that for the SN60WF?

Recent improvements to IOLs include asphericity, multifocality, and toricity, and the lens surface for these features is not always the same. The SN60WF IOL has a posterior aspheric surface and the SN6ATT IOLs have an anterior aspheric surface with a posterior toric surface. The move of the asphericity from the posterior of the SN60WF lens to the anterior of the SN6ATT lens leads to the higher A-Constant.

Lens style for which personalized A-Constant is available	A-Constant for SN6ATT
SN60D3 / AcrySof® ReSTOR® IOL	Add 0.9 to SN60D3 value
SN60AT / SN60TT / AcrySof® Toric IOL	Add 0.6 to SN60AT value
SN60WF / AcrySof® IQ IOL	Add 0.3 to SN60WF value
SN6AD3 / AcrySof® IQ ReSTOR® IOL	Add 0.1 to SN6AD3 value

4. I use IOLMaster® Optical Biometer. What lens constant value should I use?

In general, IOLMaster® Optical Biometer measurements tend to be similar for different clinics, and typical values for lens constants are given on the ULIB website (<http://www.augenklinik.uni-wuerzburg.de/ulib/c1.htm>). You can compare personalized lens constants for IOLs that you have experience with to the values given on the website as a check. This may be an alternative source for estimating the personalized values for new lens models.

5. Why is my personalized A-Constant using IOLMaster® Optical Biometer different to the value on the box?

IOLMaster® Optical Biometer measures a slightly different anatomical space as compared to traditional ultrasound biometry, and it was introduced after the A-Constants for many of Alcon's AcrySof® IOLs were established using ultrasound. While this technology is used by a growing number of ophthalmologists, the published A-Constant numbers currently still reflect contact ultrasound and the SRK2 equation (rather than the SRK/T equation), in order to capture the relative differences between the lens styles.

6. What exactly is a “personalized” lens constant and how do I determine it?

The lens constant compensates for systematic variables that affect the postoperative refraction. It is calculated by taking postoperative refraction data for a large group of patients, all treated using the same biometry and calculation methods, and back-calculating the lens constant so that the average calculated postoperative refraction matches the actual average postoperative refraction. Ideally you should include at least 50 patients in this analysis, preferably with data from both eyes. Software is readily available to calculate this, and calculation capabilities are often included in measurement equipment.

7. How important is a “personalized” lens constant?

Personalized lens constants should always be used if available, since they compensate for the differences in equipment and techniques used by different clinics. Personalization is particularly important for handheld contact ultrasound, where differences between different manufacturer’s instruments, such as the physical indentation of the cornea by the probe can lead to a range of axial length values. Even if IOLMaster* Optical Biometer is used for most cases, when ultrasound is still required for sometimes, and a personalized lens constant is needed. Mounting the probe on a slitlamp may reduce some of the variability. The lens constants may need to be personalized for each operator, particularly for contact ultrasound. Lens constants will normally be different for contact ultrasound, immersion ultrasound, and IOLMaster* Optical Biometer.

8. How do I convert from the A-Constant to other lens constants?

The “theoretical formulae” use a lens constant that is related to the ACD. For Alcon’s single-piece aspheric IOLs, the traditional 1988 conversion table that is commonly available gives an approximate relationship between the SRK/T A-Constant and the ACD-Constant or Surgeon Factor (though not for the SRK2 A-Constant, for which the table was originally created). A personalized SRK/T A-Constant can be converted to the SF or ACD constants using the table.

9. How do I estimate the personalized lens constant for the Haigis formula?

The lens constants for the Haigis formula can be estimated from a personalized A-Constant using the method included in the ULIB website (see FAQ 7).

11. What if I have never used any of these Alcon lenses?

Ideally you should first work with the SN60WF lens, develop a personalized A-constant for it, and then move on to the SN6ATT, making the adjustment described above.

10. Why are A-Constants higher for aspheric IOLs?

IOL power is specified using the theoretical power at the very center of the lens, in accordance with US and International Standards that were developed using spherical lenses. Aspheric IOL surfaces are flatter than the central radius, in order to control the aberrations of the eye. This leads to an “effective” IOL power for an AcrySof SN60WF lens that is about 1/3 D lower than that of an equivalent spherical IOL. The A-Constants for aspheric IOL models must be increased by an equivalent amount, in addition to other variations due to the shape factor, aspheric surface choice, etc.

12. What if I have further questions?

Additional resources you may find useful in addressing other concerns include the ULIB website (see FAQ 7), as well as the operating manual for the IOLMaster and other biometry equipment.

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