

# AcrySoft® Toric IOL: Limoli caliper versus Mendez Ring

## Clinical experience of the Low Vision Research Centre of Milan

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Paolo Limoli MD<sup>o\*</sup>, Renzo Carpi<sup>o\*</sup>, Laura D'Amato MD<sup>o</sup>, Enrico Giacomotti<sup>o</sup>, Filippo Tassi<sup>o</sup>, Patrizia Costanzo<sup>o\*</sup>  
<sup>o</sup>Low Vision Research Centre - Milan, <sup>^</sup>La Sapienza University - Rome, <sup>\*</sup>Eye.com – Palermo [paololimoli@libero.it](mailto:paololimoli@libero.it)

### Purposes:

The Toric IOL represents the biggest innovation in cataract surgery in the last three years. The quality achieved in the correction of astigmatism inside the eye, couldn't be achieved in any other way.

There are three milestones in the implant of a Toric IOL:

A) The exact measurement of the size and of the axis of corneal astigmatism.

B) The exact mark of this axis on the eyeball at the beginning of surgery.

C) The implant of the IOL with the axis marked on the eyeball.

However the marking techniques are still coarse and complex. For this reason, we created an instrument, the Goniometric Caliper, in order to insert easily, quickly and precisely the Toric IOL.

	Limoli Caliper	Mendez Ring
Age	78,5	70
Keratometric Astigmatism (T0)	3,16	2,78
Refractive astig.before surgery (T0)	2,44	2,74
Astigmatism after surgery (T1)	0,59	0,86
Delta T0-T1	2,56	1,92
% Astigmatism Reduction	86,61	69,17

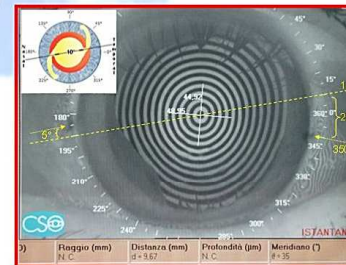


Pict. 2: Limoli Goniometric Caliper by Duckworth & Kent Ltd.

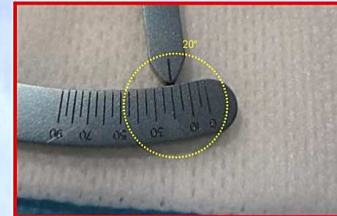
### Patients and methods:

we analyzed 30 eyes treated with Acrysoft Toric IOL, divided in two groups.

In group A (22 eyes) we used the Mendez ring in order to mark the insertion angle of the IOL, in group B (8 eyes) we used Limoli's Goniometric Caliper.



Pict. 3: in this figure we can see that the first marking is wrong of 5° as regards to a nasal perspective and of 10° as regards to a temporal perspective. But the implant axis is 10°, so we mark this axis with only one manoeuvre at a time opening the goniometric caliper of 5 degrees nasal and of 20 degrees temporal.



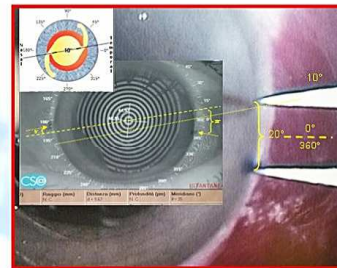
Pict. 4: the caliper is opened in the correct measure: the degrees needed for the marking of the desired axis.

For all the patients, the choice of the implant was provided by the Alcon software found on:

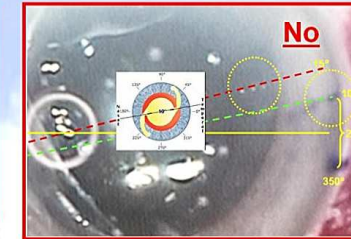
[www.acrysoftoriccalculator.com](http://www.acrysoftoriccalculator.com)

The marking is done on the limbus along the 180°-0° axis with the patient seated. Then a topographic analysis allows the valuation of the magnitude of the mistake on the mark, if it exists.

The Mendez ring has been limited to

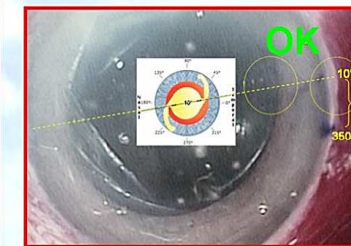


Pict. 5: the caliper, opened in the correct measure, comes headed to level of the limbus at the point of mark traced before the surgery.



Pict. 6: When we implant the toric IOL, we can confront the marks on the IOL with the mark traced by the caliper on the limbus. In this case there is a difference of 5 degrees.

the limbus and the axis has been identified with a marker afterwards. The Limoli Goniometric Caliper, opened to the necessary degrees, and with one of its tips placed on the first mark along the 180°-0° axis, permits the identification of the axis and the mark at the same time.



Pict. 7: We can rotate the IOL until the axis coincides with that one planned before the surgery (in this case 10 degrees). Now the axis is corrected and the refractive result is better.

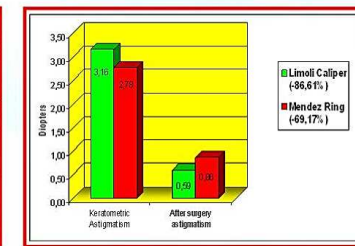
The possible errors in the first marking had been valuated and included in the opening of the caliper.

### Results:

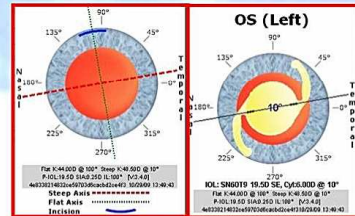
From each group we considered the preoperative corneal astigmatism and, after two weeks from the surgery, we considered also the refractive astigmatism and the relative rate of reduction of the astigmatism. The rate of reduction of the astigmatism in group A was 69.17% and in group B 86.61%.

### Conclusions:

The Goniometric Caliper gives the required precision criteria and makes the marking more simple.



Pict. 8: The preoperative corneal astigmatism is remarkably reduced after Toric IOL, but with Limoli Goniometric Caliper the procedure is more simple and precise and the refractive astigmatism after surgery is reduced of 86%.



Pict. 1: Project for Acrysoft® Toric IOL suggested by Alcon. The axis is at 10°.

### References

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