The Nidek MK-2000 Microkeratome was developed in 1999; therefore, by that time with all the experience from thousand of flaps made by other microkeratomes, Nidek engineers had enough data to build a safe microkeratome. The main specifications and its safety futures are summarize as follows:

1. Automated: no dependency on surgeon hand motion speed, and consequently, more chances for reproducible flap thickness.
2. One-handed: no need for on-site surgical assembly by the surgeon. Less risk of suction loss. Less stress for the surgeon.
3. No gears: less chances for jamming. It has protective walls, which prevents jamming due to eyelid closure by the patient.
4. Dual-suction: immediate rise of IOP. Fewer chances for a bad flap.
5. Small profile footprint: will fit in any eye. Less risk of suction.
6. 25 degree blade angle of attack: less risk of epithelium ingrowth.
7. Variable suction ring diameters and flap thickness head: allows the surgeon to customize the flap based on patient preoperative cornea curvature and diameter, as well on preoperative refraction.
8. Two motors, one for advancement and the other for blade oscillation: provides more power and reliability for each of those needs.

One current disadvantage from its design is that in order to place the blade into the blade holder, the technician has to tighten a screw. Although, we never had any problems with that, there are reports of very thick flaps made because the screw was not tightened properly. To prevent this from happening, Nidek engineers designed a wedge that will prevent the blade head chamber to open even if the technician did not closed the chamber properly.

Table 19.2-1 shows the rate of complications found in our practice during the first 5000 procedures done with the MK-2000. Epithelial abrasion may happen with a new microkeratome, and the rate will be reduced to a minimum extent after its initial use. The surgeon may find a mild epithelium “softening” in the superior edge of the flap when the 9.5 mm ring is being used, or in older patients. The MK-2000 has been overall very gentle to the epithelium.

One potential disadvantage of the MK-2000 for some LASIK surgeons is that it was designed as a nasal flap microkeratome. Particularly, I do prefer nasal flaps for the following two reasons:

a. as the cornea has a longer diameter horizontally, nasal hinge flaps allows for larger ablations
b. cutting flaps horizontally will preserves corneal sensation by avoiding the transection of one of the arms of the neural plexus (nasal arm), and therefore will induce less dry-eye syndrome that using superior hinge flaps.

In conclusion, the Nidek MK-2000 microkeratome is a very friendly easy to use microkeratome with a very low incidence of complications.