Benefits at a Glance

- Ultra thin flaps < 100 µm with quality control led endothelial layer
- Image guided cutting process
- Precise definition of cutting thickness
- Plan parallel cuts
- Computer controlled automated process
- Less unusable transplants
- Contact free cutting process
- Clean room environment possible
- Easy to use
- User guided process

Contact

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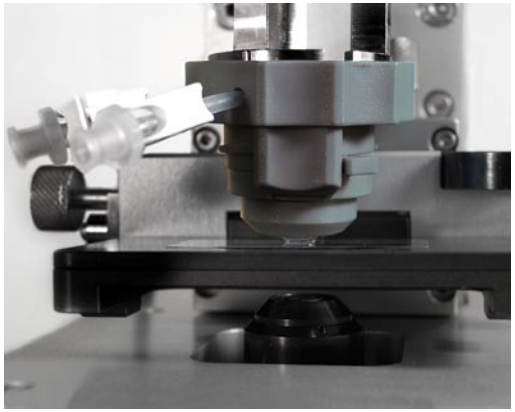
CorneaSurgeon

fs Laser Microkeratome



The CorneaSurgeon is a femtosecond laser based cutting tool for the preparation of corneal donor tissue. The donor tissue can be used for the most keratoplasty procedures (DLEK, DMEK/DSEK, PK).

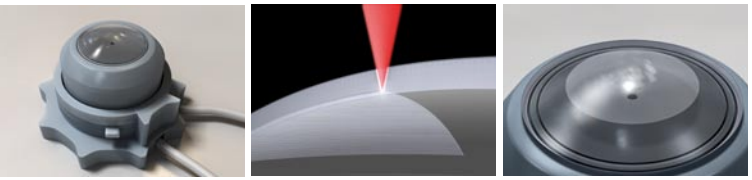
An integrated OCT imaging device enables the user to create corneal lamellae of variable thickness.

CorneaSurgeon

fs-Laser Microkeratome

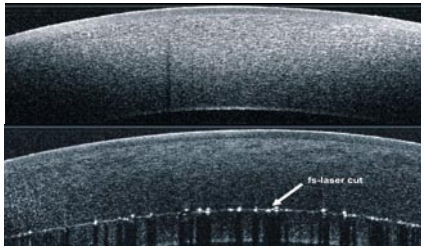
Predictable and precise lenticule creation is fundamental for therapeutical lamellar corneal surgery. In DSAEK it is desireable to create thin planoparallel posterior lamellar grafts, in order to avoid refractive shifts and better tissue adaption after transplantation. The introduction of real-time OCT (Optical Coherence Tomography) visualisation of the corneal layers before and after the femtosecond (fs)-laser processing enables the surgeon to control and monitor the position of the plane of laser-tissue-interaction.

The aim is to cut flaps/lamellae as thin as possible and as safe as possible. DSAEK donor lamellae can now be prepared with the CorneaSurgeon by LLS ROWIAK LaserLabSolutions GmbH, Hanover, Germany.

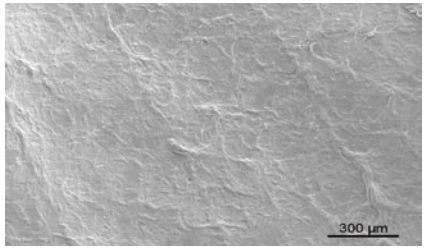


Principle of the cutting process: the cornea is fixed into an artificial chamber (left). The laser cuts the graft at the defined position (center). After cutting, the graft can be stored without opening the cut (right)

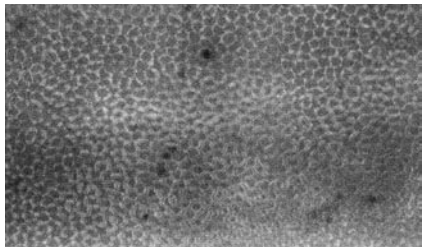
OCT cross section of the cornea before and after laser cutting



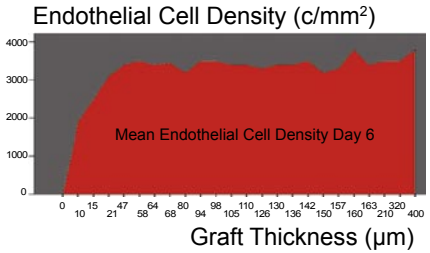
SEM of the stromal bed after the laser process



Endothelial Cells of the donor lamella (100 µm)



Correlation between graft thickness and residual endothelial cell density on day 6 after fs-laser lamelation



Technical Data

Dimensions

- Clean room version with additional clean bench for tissue preparation
  W x H x D = 2534 mm x 2300 mm x 1150 mm
- Clean room version without additional bench for tissue preparation
  W x H x D = 1266 mm x 2300 mm x 1150 mm
- Footprint fs-Laser Microkeratome:
  W x D = 900 mm x 600 mm

W=width, H=height, D=depth

Recommended Environment

Electricity 110-250 VAC, 50/60 Hz,<16 A @ 220 V

- Ambient temperature constant value, set between 15 and 25°C
- Temperature stability ± 1,5 °C
- Humidity < 60% @ 25°C