

Rethinking Corneal Surgery

# The innovative SmartTech Laser

A groundbreaking concept laser system: Experience the paradigm shift in refractive and therapeutic corneal surgery. The nanosecond laser is the smart alternative to femtosecond lasers.



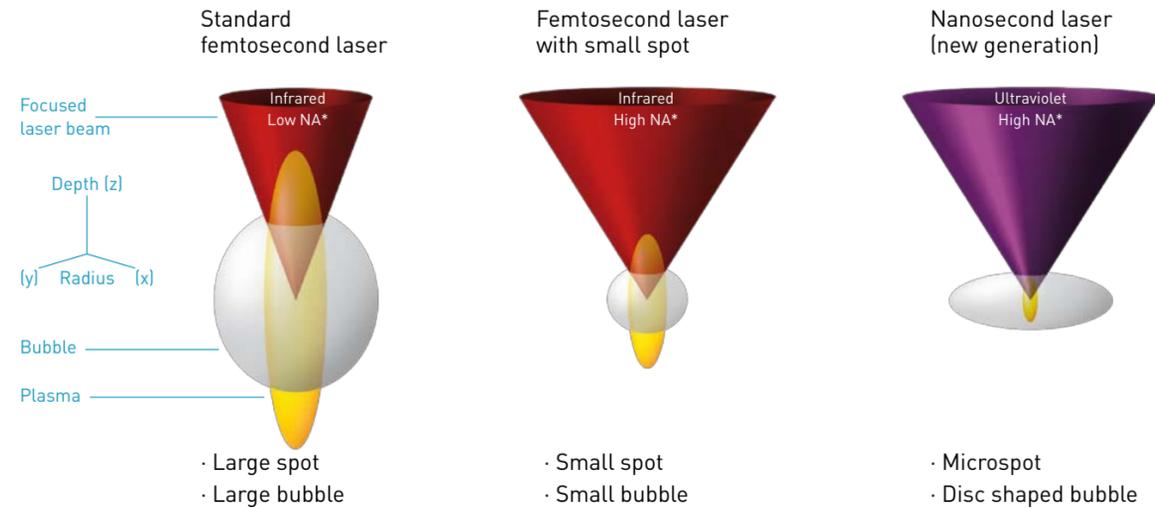
# The innovative SmartTech Laser

## Why SmartTech?

Our SmartTech Laser is based on nanosecond laser technology. Just like the femtosecond laser, it applies laser-induced plasma to separate the corneal tissue. However, instead of the highly complex technology of

the femtosecond laser, an innovative microchip laser is used. Its short wavelength in the UV range (355 nm) and aberration-free optical system ensure extreme precision.

## Laser-tissue interaction photodisruption



~3x shorter wavelength → ~3x smaller spot → Better resolution (especially in depth)  
 Nanosecond pulses → Disc shaped bubble → Low total pulse duration → Low total pulse energy

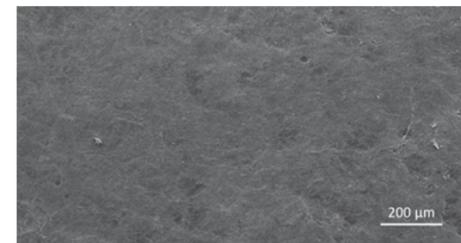
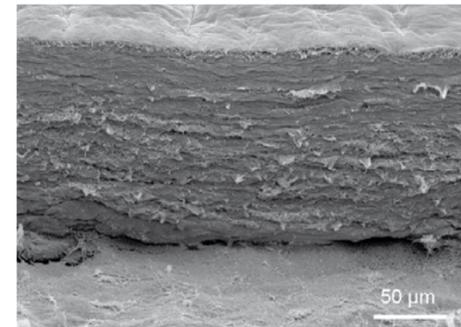
↓  
**Faster treatment**

Simulated for the same pulse energy and pulse frequency

\*NA = numerical aperture

## High resolution

The focal spot size of the SmartTech Laser is just one third of the spot size of standard femtosecond lasers on the market. The low-density plasma combined with the short wavelength ensures significantly finer structures. That leads to more precise cuts and smoother cut surfaces in LASIK flap procedures, as well as increased safety in flap preparation. The flap can be lifted just as easily as with the mechanical microkeratome.



## Maximum safety

The aberration-free optical system allows for low laser pulse energy. The high pulse frequency ensures a short treatment time, along with maximum patient comfort.

The SmartTech Laser has integrated pupil detection and takes the input from the pupil offset into account. This allows the flap to be ideally positioned on the planned ablation centre, ensuring increased safety.

## More possibilities

In addition to applications in refractive surgery, the SmartTech Laser will soon also offer an advanced platform for therapeutic applications. This includes lamellar keratoplasty, intracorneal rings, corneal inlays and astigmatic keratotomy.

## Low life cycle costs

By using a SmartTech Laser, you will be able to significantly lower your life cycle costs and look forward to a high level of operating safety in the future. We offer you the economic alternative to a femtosecond laser.

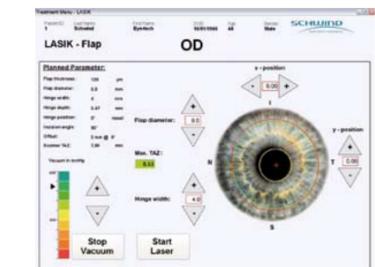
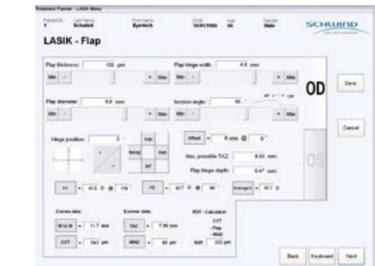
## Pure flexibility

An extremely compact design coupled with a low weight: The result is an impressive level of mobility.



You will benefit from guaranteed convenience in the workflow with your laser treatments: the SmartTech Laser can be combined with the SCHWIND AMARIS® laser systems and all standard excimer lasers on the market.

## Smart software



## The SmartTech Laser at a glance

|   |   |
|---|---|
| <b>Technology</b>                       | Nanosecond laser technology<br>based on a microchip laser                                       |
| <b>Wavelength</b>                       | 355 nm<br>High resolution   |
| <b>Pulse frequency</b>                  | 150 kHz<br>Short treatment time   |
| <b>Pulse duration</b>                   | 0.5 – 1.0 ns<br>Low-density plasma (disc shaped bubbles)  |
| <b>Variable flap diameter</b>           | 7.5 to 10.5 mm (LASIK)<br>7.0 to 10.0 mm (lamellar keratoplasty)                                |
| <b>Freely selectable hinge position</b> | 360°  |
| <b>Variable angle for side cut</b>      | 45° to 105°   |
| <b>Wide treatment range</b>             | LASIK flap, lamellar keratoplasty, intracorneal rings,<br>corneal inlays, astigmatic keratotomy |
| <b>High mobility</b>                    | Compact design, low weight  |