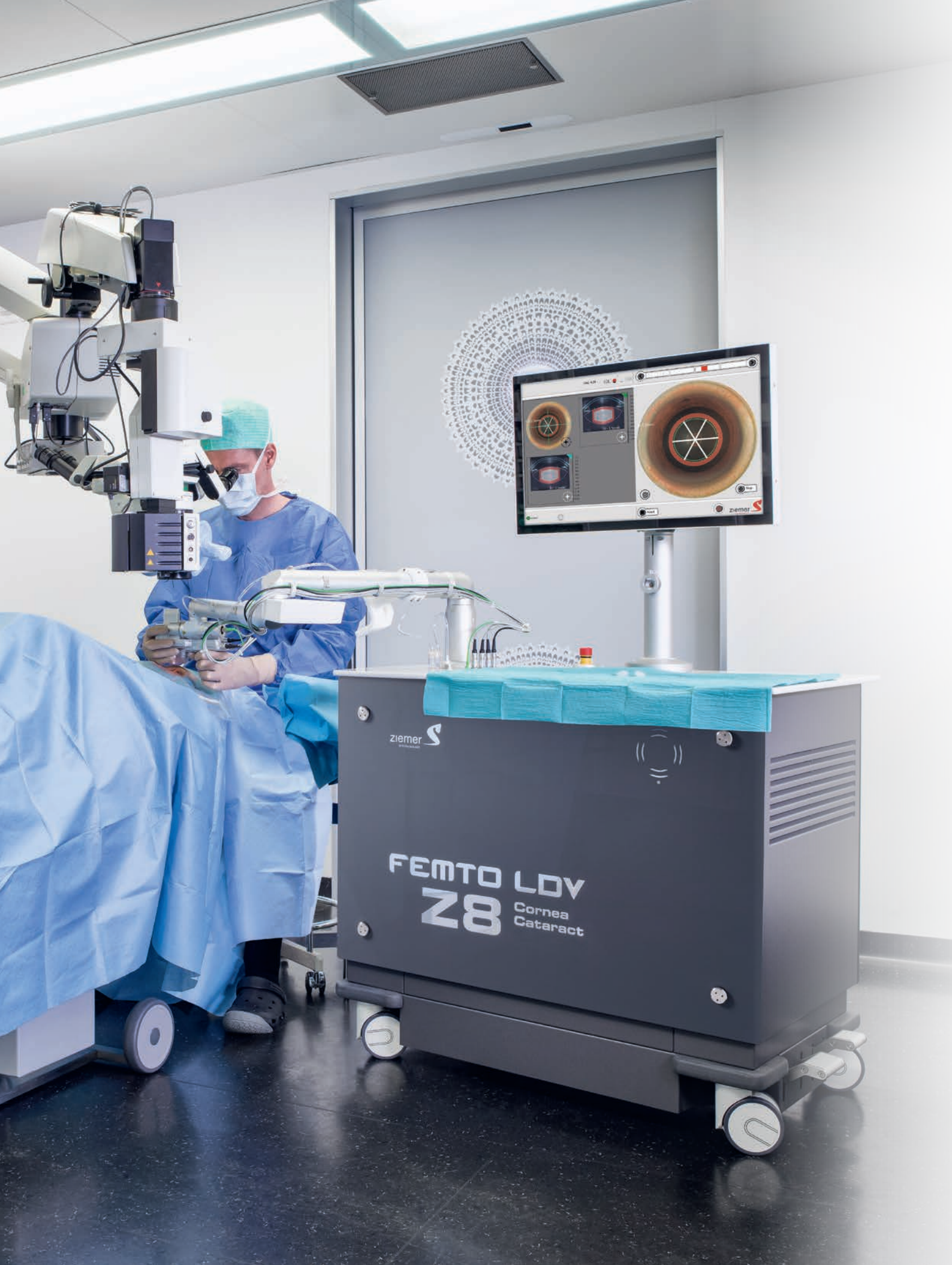


# FEMTO LDV Z8 Cornea Cataract



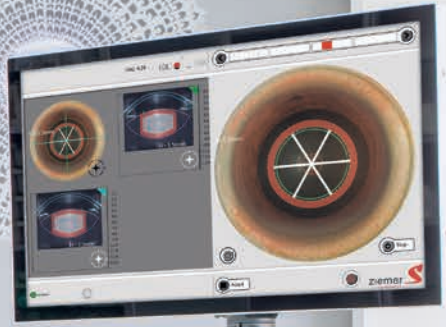
## THE FEMTO LDV Z8

The mobile all-in-one femto laser platform  
for Refractive, Therapeutic and Cataract surgery



ziemer S

FEMTO LDV  
Z8 Cornea  
Cataract



# Comfort and flexibility

**The FEMTO LDV Z8 is the all-in-one laser platform to perform refractive, therapeutic and cataract surgery.**

- The compact design integrates seamlessly into your workflow
- No intraoperative patient transfer needed
- Easy to mobilize
- The laser moves to the patient streamlining the process and saving OR time

**The FEMTO LDV Z8 is the optimal partner for your laser business.**

- Share investment costs between different departments or even practices
- Enhance your offering no matter if you want to perform refractive, therapeutic or cataract surgery
- Establish your laser business without additional investment in your infrastructure (no special power supply is needed)

**The FEMTO LDV Z8 offers advanced patient interfaces.**

**Liquid patient interface** for cataract procedures and Liquid PKP:

- Relaxed, non-deformed cornea without posterior folds
- Reduced IOP rise during surgery<sup>1,2</sup>
- Prevention of blackouts and subconjunctival hemorrhage<sup>3</sup>

**Applanating patient interface** for corneal surgery:

- Stable position of the cornea
- Docking in one or two steps possible
- Optimized for refractive surgery

# The All-In-One Laser Platform

The FEMTO LDV Z8 can be customized with application modules according to your requirements. More applications can be added to your laser as your practice and technology advances. It is the perfect partner for refractive, therapeutic and cataract surgery.

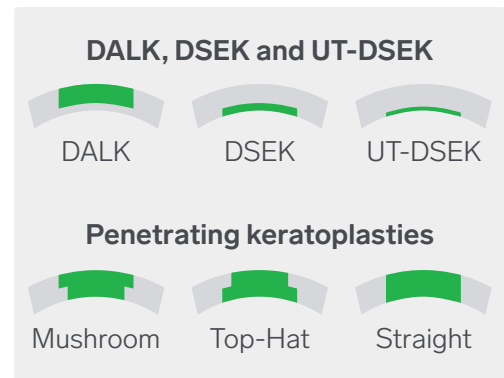
## Refractive surgery

The refractive options cover either our established Z-LASIK package which includes all our LASIK options, or our new CLEAR application, which offers more convenience for a guided Lenticule extraction.



## Therapeutic surgery

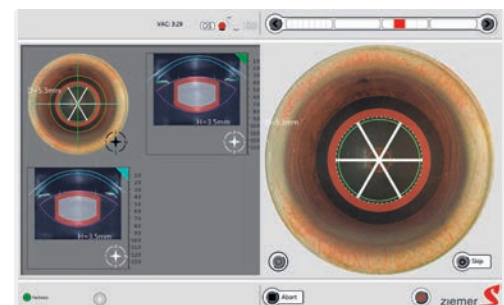
Choose from multiple options of therapeutic corneal surgery like tunnel creation for Intracorneal Rings and Keratoplasties including the following options: lamellar Keratoplasties (DALK, DSEK, UT-DSEK) and penetrating Keratoplasties (mushroom, top-hat, straight).



## Cataract surgery

FEMTO LDV Z8 can be used for a complete laser-assisted cataract pre-treatment including:

- Lens Fragmentation
- Capsulotomy
- Clear corneal incisions
- Arcuate incisions

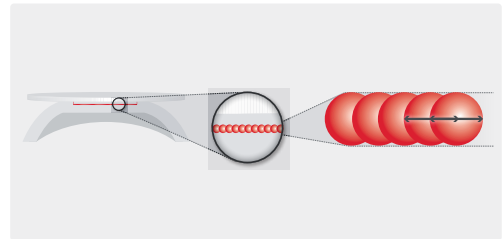


# Low energy concept

The FEMTO LDV Z8 uses low energy pulses in the nanojoule range and a high pulse repetition rate. This results in extremely high precision, gentle treatments and enables complete and smooth resections.

## Overlapping laser spots

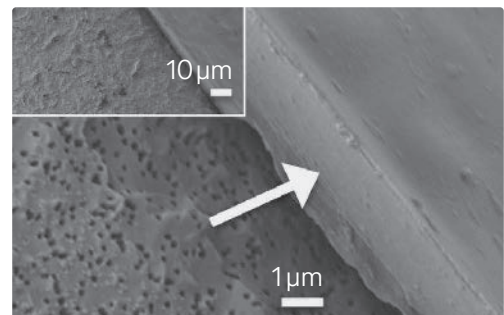
- Overlapping laser spots for complete and smooth resection
- Low energy per pulse in the nJ range for gentler treatments
- High repetition rate in the MHz range for fast procedures



Dense spacing of the laser pulses results in overlapping spots

## High-density pulse raster

- Complete resections free of tissue bridges<sup>4,5</sup>
- Smooth stromal beds<sup>6</sup>
- High precision and predictability<sup>7</sup>
- Capsule edges that are hard to distinguish from edges seen in conventional surgery<sup>8</sup>



FEMTO LDV Z8 created capsule edge morphology in human eye

## Tissue-adapted pulse management

Due to the intelligent pulse management system, the power is put where it is needed:

- Lower power in the cornea (e.g. LASIK, CLEAR)
- Higher power in the lens (e.g. dense cataracts)



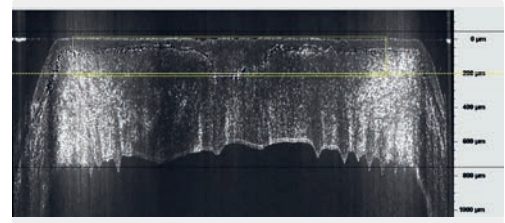
The unique design of the handpiece enables a short working distance to the eye

# Image-guided surgery

The Ziemer spectral domain Optical Coherence Tomography (OCT) system is highly specialized for corneal and lens surgery and custom made for the FEMTO LDV Z8. The OCT imaging provides a live view throughout all stages of the refractive, therapeutic and cataract procedure.

## Surgical planning by OCT imaging

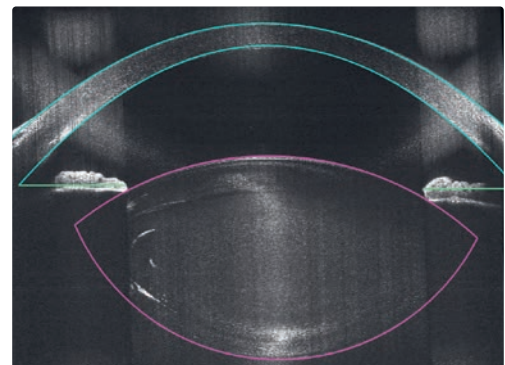
- Enhanced surgical planning
- Clear visualization of previous resections (e. g. LASIK-flaps or keratoplasties) and scars
- Increased planning options for ultra-thin resections of 80 microns or less



An OCT scan allows for a detailed visualization of the corneal tissue (here: corneal scarring)

## Automated ocular surface mapping

- Automatic edge detection (pupil, limbus, cornea, lens and iris)
- Resection geometry placement automatically suggested by the planning software based on the individual surgeon's preferences



## High-quality images for tailor-made surgery

- Better visual control and simplified docking
- Live imaging between the steps of the cataract pre-treatment
- Automatic cuts placement for minimum manual adjustments under vacuum



# Applications à la carte

Choose the applications you need today –  
add more to your laser tomorrow

	Application module	Z8 Options
Refractive	Z-LASIK Package	<input type="checkbox"/>
	CLEAR – Lenticule Extraction	<input type="checkbox"/>
	Intrastromal Pocket (ISP)	<input type="checkbox"/>
Therapeutic	Intracorneal Rings (ICR)	<input type="checkbox"/>
	Penetrating Keratoplasty (PKP)	<input type="checkbox"/>
	Lamellar Keratoplasty (LKP)	<input type="checkbox"/>
	Liquid Penetrating Keratoplasty (LPK)	<input type="checkbox"/>
Cataract	Clear Corneal Incisions (CCI)	<input type="checkbox"/>
	Arcuate Incisions (ARC)	<input type="checkbox"/>
	Capsulotomy and Lens Fragmentation	<input type="checkbox"/>

## FEMTO LDV Z8 – One for everything

- Mobile, compact and lightweight: roll in and out
- Articulating arm: seamless integration into your workflow
- No additional air conditioning needed
- Wide spectrum of applications: Cornea and Cataract
- Low energy concept: high precision and gentle surgery
- OCT ensures optimal control during the surgery

**We strive to empower Ophthalmologists to deliver better vision care to their patients by providing superior surgical and diagnostic tools.**

## Why Ziemer?

- Trusted – More than 1200 systems installed worldwide
- High-tech lasers and diagnostics made in Switzerland
- A family-owned company with personal service
- Cutting-edge innovation in Ophthalmology

### References:

- <sup>1</sup> Talamo, J.H., et al. (2013). Optical patient interface in femtosecond laser-assisted cataract surgery: contact corneal applanation versus liquid immersion. *Journal of Cataract and Refractive Surgery*, 39(4): 501-10.
- <sup>2</sup> Schulz, T. et al. (2013). Intraocular pressure variation during femtosecond laser-assisted cataract surgery using a fluid-filled interface. *Journal of Cataract & Refractive Surgery*, 39(1), 22-27.
- <sup>3</sup> Pajic, B., et al. (2014). First experience with the new high-frequency femtosecond laser system (LDV Z8) for cataract surgery. *Clinical Ophthalmology*, 8, 2485-2489.
- <sup>4</sup> Kermani, O. & Oberheide, U. (2008). Comparative micromorphologic in vitro porcine study of IntraLase and Femto LDV femtosecond lasers. *Journal of Cataract and Refractive Surgery* (2008), 34(8): 1393-1399.
- <sup>5</sup> Pajic, B. (2015). Seamless Workflow Integration With the FEMTO LDV Z8. *Supplement to Cataract & Refractive Surgery Today*, 12-13.
- <sup>6</sup> Varga, Z. et al. (2016). Scanning Electronic Microscopy Evaluation of the Roughness of the Stromal Bed After Deep Corneal Cut with the LDV Femtosecond Laser (Z6)(Ziemer) and the ONE Microkeratome (Moria). *Current eye research*, 1-8.
- <sup>7</sup> Ahn, H., Kim, J. K., Kim, C. K., Han, G. H., Seo, K. Y., & Kim, E. K. (2011). Comparison of laser in situ keratomileusis flaps created by 3 femtosecond lasers and a microkeratome. *Journal of Cataract & Refractive Surgery*, 37(2), 349-357.
- <sup>8</sup> Williams, G. P. et al. (2016) The effects of a low-energy, high frequency liquid optic interface femtosecond laser system on lens capsulotomy. *Scientific reports* 6.

**FEMTO LDV**  
**Z8** Cornea  
Cataract

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

