



VisuMax from ZEISS

Defining the pulse rate in refractive surgery



Optimized precision and detail

Defining new trends in modern corneal surgery

As a ground-breaking, high-performance femtosecond laser system, the VisuMax® from ZEISS is significantly shaping the world of refractive surgery. With its outstanding cutting precision, exceptional speed and gentle treatment approach, it is the ideal platform for cutting-edge refractive surgery applications, including corneal flaps, keratoplasty, intracorneal ring tunnels (ICR) and the SMILE® procedure.

Small incision lenticule extraction, or SMILE, is redefining refractive surgery as we know it. ZEISS is at the forefront of this form of laser vision correction with the minimally invasive, flapless ReLEx® SMILE® procedure.

The combination of the VisuMax and the MEL® 80 excimer laser from ZEISS addresses wide-ranging needs of the modern refractive surgical practice. The result is a refractive platform that merges proven corneal surgical techniques with remarkable details as the basis for excellent, highly individualized treatment outcomes.





Precision in all its facets

The VisuMax is a truly innovative femtosecond laser system. The sophisticated design supports maximum cutting precision, efficiency, predictability and comfort for the most advanced corneal surgery applications.

ReLex SMILE

The VisuMax is the first femtosecond laser system to perform the minimally invasive, flapless SMILE procedure. With ReLex SMILE from ZEISS, a refractive lenticule, as well as the incision through which it is extracted, are created in a single step – without ablation or flap.

Flap

The VisuMax creates flaps of a highly predictable thickness and of adjustable geometries for Femto-LASIK. Patients describe Femto-LASIK with the VisuMax laser as a very gentle treatment experience.

Keratoplasty

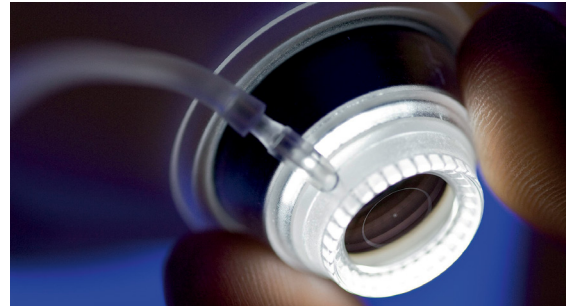
With the Keratoplasty option, the VisuMax covers several corneal transplant procedures, including lamellar and penetrating keratoplasty. High-precision cutting quality and rapid incision speed enable the efficient preparation of precision corneal grafts and the recipient's cornea.

Incision for ICR

The femtosecond laser technology of the VisuMax is also ideally suited for creating incisions in preparation of intracorneal ring (ICR) implantations. When defining tunnel parameters, it performs inclined cutting geometries and ring tunnel segments smaller than 360 degrees with a high degree of flexibility.

VisuMax highlights

The building blocks of state-of-the-art femtosecond technology



A contact glass designed for the cornea

Like the surface of the human cornea, VisuMax contact glasses are curved. Available in three different sizes (S, M, L), they are optimally designed to fit the anatomy of the eye. As a result, the cornea largely retains its natural physiological shape. Artifacts are avoided in the cutting result, as is unnecessarily high IOP for the patient.



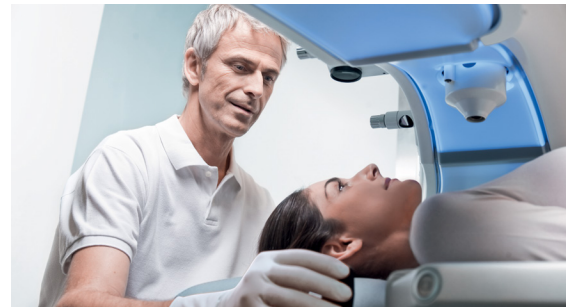
Maximum cutting precision

High-precision ZEISS optics provide an extremely focused laser beam. The result: minimum laser pulse energy at a high pulse frequency for unsurpassed incision control – at precisely the desired depth of the cornea, with three-dimensional, curved incisions.



Brilliant visual control

The integrated high-quality ZEISS surgical microscope ensures precise and complete visual control during every manual surgical manipulation. It includes a digital video camera for recording surgical procedures right on the spot.



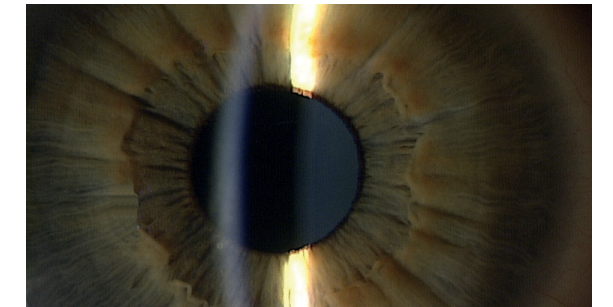
Smart guidance

The sturdy, ergonomic pivoting patient supporting system is designed to provide maximum comfort during the treatment. It continuously monitors the patient's position, automatically making needed adjustments. The ZEISS VisuMax also incorporates an easy-to-use, interactive touchscreen and intuitive software to assist the surgeon at every step throughout the procedure.



Efficiency that pays off

With a pulse frequency of 500 kHz, the ZEISS VisuMax enables short treatment times, making procedures more comfortable for both physicians and patients. The result is an efficient workflow and a higher throughput of satisfied patients.



Reassurance right on the spot

As a universal workstation for corneal surgery, the system features integrated slit illumination to monitor treatments and immediately control results – without the patient needing to be moved.

User-oriented intuition

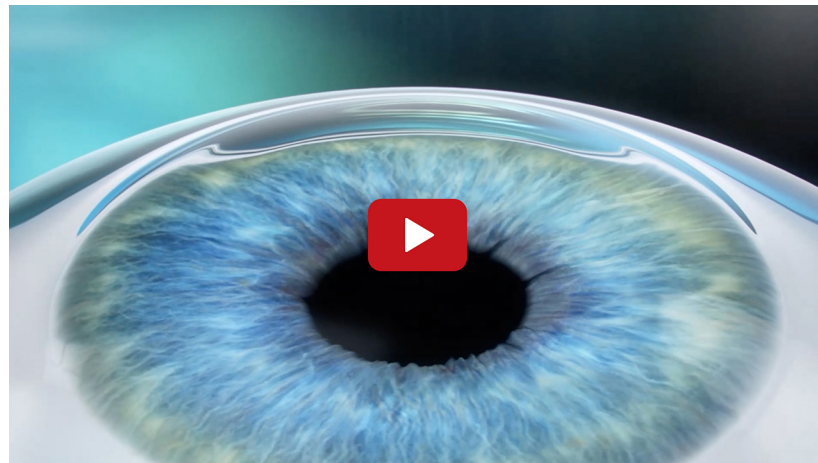
With its easy-to-use, interactive touchscreen and intuitive software, the ZEISS VisuMax supports surgeons at every step throughout the procedure.

ReLEX SMILE

Minimally invasive, flapless surgery

SMILE is redefining refractive surgery as we know it. A unique, minimally invasive laser vision correction procedure, ReLEX SMILE is an innovative approach to myopia correction that is only available on the VisuMax femtosecond laser.

Watch the video



Flapless

The ZEISS VisuMax is the first and only femtosecond laser system to support this unique laser vision correction procedure. A highly precise, precalculated lenticule is created inside the intact cornea and removed via a small incision – all without a flap.

Minimally invasive

Requiring no flap, ReLEX SMILE offers the potential of fewer transected nerves. Amongst other things, the corneal nerves are responsible for sending signals to the brain to stimulate tear film production to maintain a healthy ocular surface.

Seamless

The lenticule creation and extraction are performed without interruption. Also, the patient doesn't need to be moved, making ReLEX SMILE a fast, seamless treatment method.

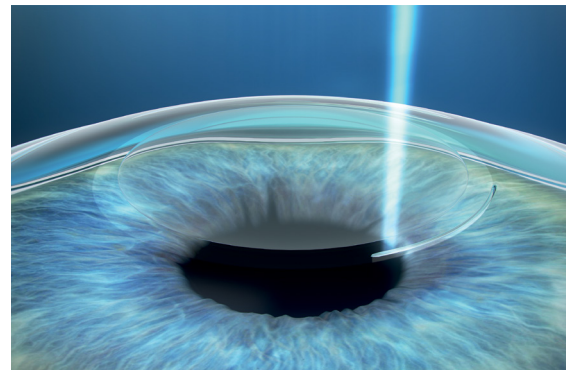
Excellent outcomes

Advanced laser vision correction with ReLEX SMILE promotes more efficient workflows and shorter treatment times, as well as excellent outcomes with high predictability, including for higher refraction values.

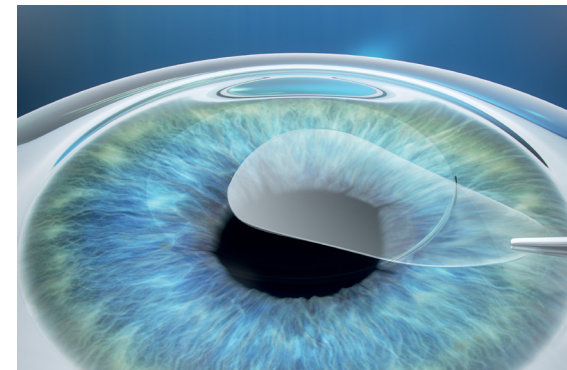
Outstanding results with ReLEX SMILE

- Innovative approach to correcting myopia with or without astigmatism, that is only available on the VisuMax laser
- Small incision options of 60 or 90 degrees

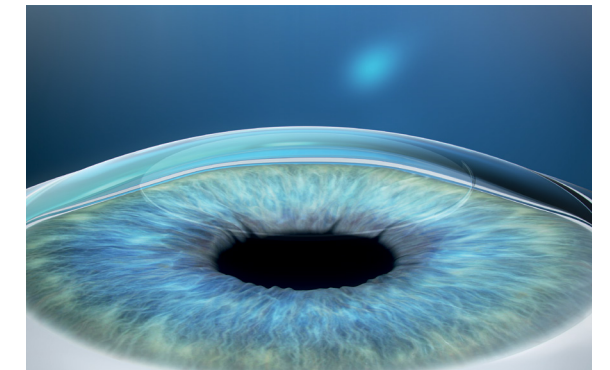
The three steps of small incision lenticule extraction



The creation of a refractive lenticule and a small incision option of 60 or 90 degrees in the intact cornea is performed in one step.



The lenticule is removed through the small incision. The disruption to the corneal biomechanics is minimal.



Once the lenticule is removed, the corneal shape is altered, thereby achieving the desired refractive correction.

Flap

For best possible conditions

For Femto-LASIK, VisuMax means above all one thing: high-precision flaps. Combined with the MEL 80 excimer laser, it offers an optimally coordinated refractive laser surgery system solution for refractive for a convenient workflow, efficient patient management and the best possible results.

VisuMax precision

- High-precision flaps due to high-performance femtosecond technology
- High reproducibility and consistency of flap thickness
- Easy positioning of the flap
- Optimum workflow due to intelligently coordinated system components
- Smooth, finely structured surface of the stromal bed
- Prevents unnecessarily raised IOP, and thus temporary losses of vision and trauma, due to the anatomically curved contact glass and the non-scleral suction

Pivotable patient supporting system – Optimum workflows for greater comfort

The shared use of the pivotable patient supporting system by the VisuMax and the MEL 80 saves the patient from having to move from one treatment location to another. The patient experiences the surgery as an integrated process. Unnecessary waiting periods are minimized and treatment efficiency increased.

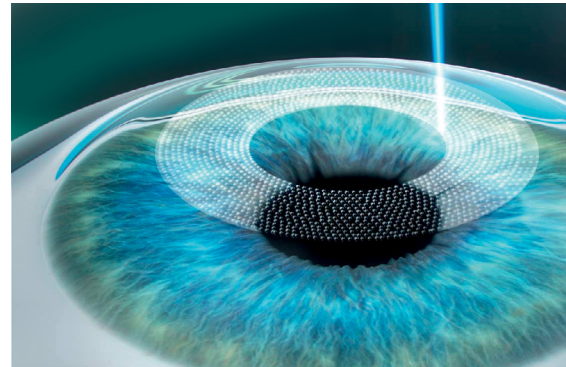
MEL excimer excellence

All the parameters of this high-precision excimer laser are geared to increasing efficiency, achieving optimum treatment results and rapid visual recovery. Key factors here are the extremely high ablation speed, the high-performance eye tracker system and eye registration.



Femto-LASIK

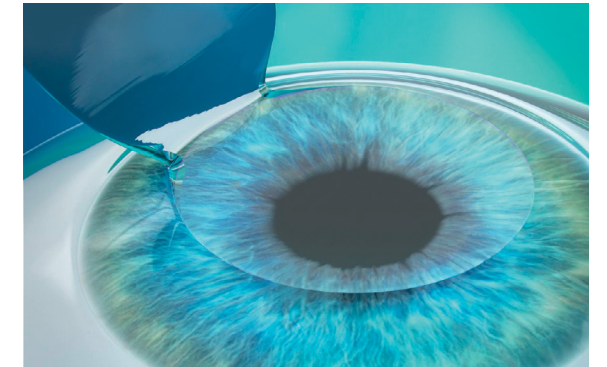
Laser in-situ keratomileusis



The VisuMax femtosecond system creates the flap.

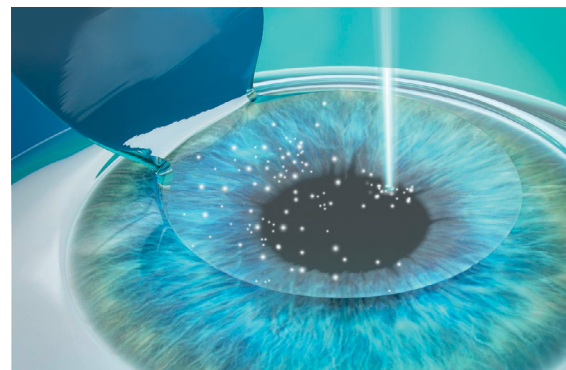
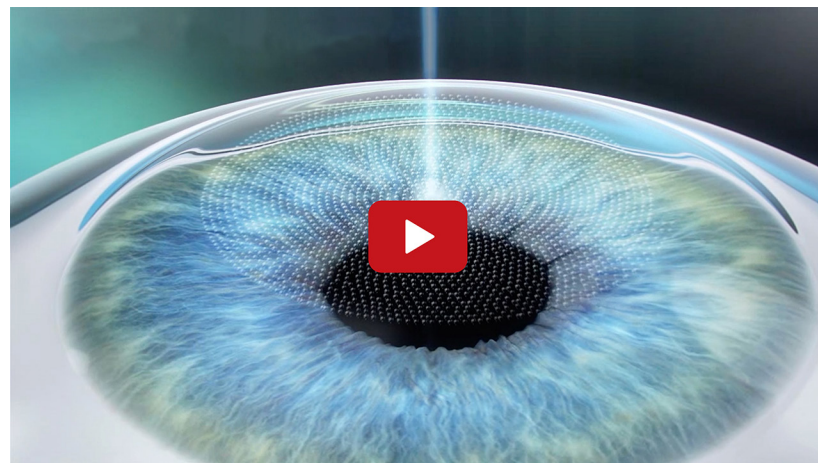


The patient moves to the MEL 80 excimer laser.



The flap is manually opened and folded back to expose the deeper corneal layer (stroma) beneath.

Watch the video



The MEL 80 excimer laser ablates the pre-calculated corneal tissue point by point.



The upper corneal layer is then repositioned following the refractive correction.

Keratoplasty

For high-precision tissue grafts

With the Keratoplasty option, the ZEISS VisuMax becomes a state-of-the-art workstation for customized corneal therapeutics including corneal grafts, enabling smooth lamellar and circular incisions for Penetrating Keratoplasty (PKP) and Lamellar Keratoplasty.

Precise results

- High-precision cutting quality in anterior lamellar and endothelial Keratoplasty
- Penetrating Keratoplasty with perfect fit for donor and recipient cornea
- Precisely predictable incision pattern for greater reliability when preparing thin grafts
- Small spot distance for excellent cutting quality and easy separation of the tissue
- Flexible adjustment of the cutting parameters on the VisuMax

Maximum efficiency for optimum workflows

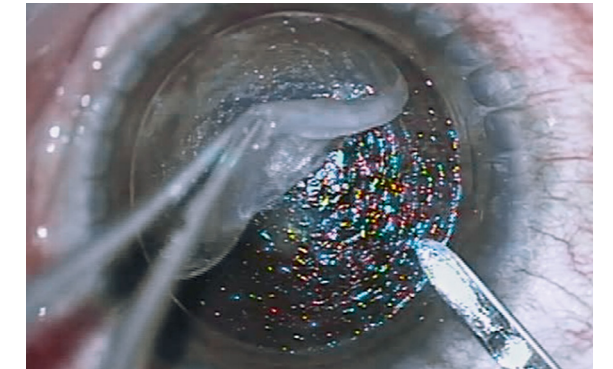
- 500 kHz laser pulse frequency for faster, more precise treatments and shorter cutting times (typically less than 60 seconds), even for very deep cuts
- High-quality surgical microscope for visual control at all treatment phases



The unique adapter attached to the headrest of the patient supporting system serves as an ideal work platform for preparing the corneal donor graft



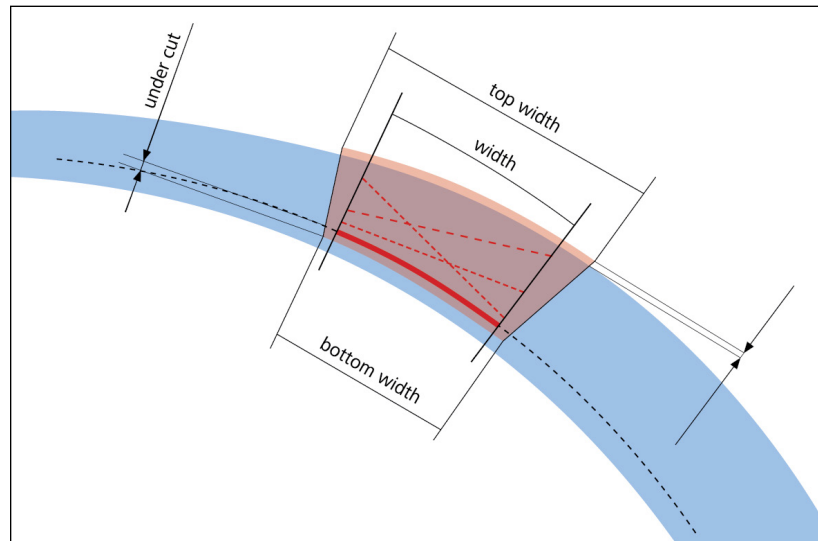
The curved contour of the contact glass prevents any unnecessary compression of the corneal tissue. It is also compatible with most artificial anterior chambers



Separation of the cut lamellae from the recipient cornea as viewed through the VisuMax surgical microscope

Incision for ICR

Optimized treatment planning



Freely variable cutting parameters, even for incisions parallel to the posterior corneal surface

When implanting intracorneal ring (ICR) segments, surgeons benefit from the unique advantages of the VisuMax femtosecond laser. The incision for ICR option offers the possibility, for the first time, to create even inclined cutting geometries as well as single tunnel segments between 90° and 270°. The repeatedly proven femtosecond laser technology ensures not only high-precision cutting quality but also previously unattainable degrees of freedom when defining the tunnel parameters.

Degrees of freedom redefined

The VisuMax, with its cleared range of adjustable parameters and combinations thereof, is optimally designed to provide surgeons a unique degree of flexibility in incision planning for approved ICR indications.

Tailor-made segments

For the first time it is also possible to create tunnels with an arc angle of less than 360° using a femtosecond laser: With segments of between 90° and 270° partial tunnels can be designed individually with precision and a high degree of flexibility. Thus tunnels can also be created for the combination of ring segments with different thicknesses to address different SEQs of a patient's individual manifest refraction.

New treatment alternatives offer individual benefits

- The option to select between 0, 1 or 2 trapezoidal access incisions facilitates flexible tunnel access
- Width and inclination of the tunnel can be freely defined and precisely adjusted to the individual corneal shape and the applied ring geometry
- Seamlessly integrated into the user interface of the VisuMax, the ICR option provides maximum ease of use
- Rapid and intuitive entry of the necessary parameters
- The possibility to save user-defined cutting geometries as reusable templates increases workflow efficiency
- Reliability enhancement by graphic visualization of the parameter selection and automatic consistency check of the input parameters
- The unique contact glass is modelled on the natural shape of the corneal surface and thus contributes to patient-friendly treatment methods
- Excellent control of tunnel preparation and ICR implant insertion as well as complete video documentation using the high-quality ZEISS surgical microscope

Practice Development Consulting Program

Benefits for your clinic

The goal of the Practice Development Consulting (PDC) program is to grow your business by reviewing, adapting and enhancing the overall patient experience at your clinic which eventually translates into increased patient volume.

By looking at your clinic through the eyes of your patients, our PDC managers take a holistic, unbiased evaluation of every element of patient interaction – from first contact to post operation.

With program elements tailored to your specific needs, the PDC manager then collaborates with your clinic to advise where improvements can be made and better results achieved.

We then guide you through the implementation process, as even the smallest changes can make a big difference.

By implementing a tracking system, the PDC program helps you to set achievable goals to track your performance both during and after the program.

The PDC program looks at your clinic in three key areas



Patient Attraction

How can you attract more patients to your clinic?



Patient Conversion

How can you improve your clinic's efficiency?



Patient Referral

How can you make sure that patients recommend your clinic?

Practice Development Consulting Program

Patient Attraction

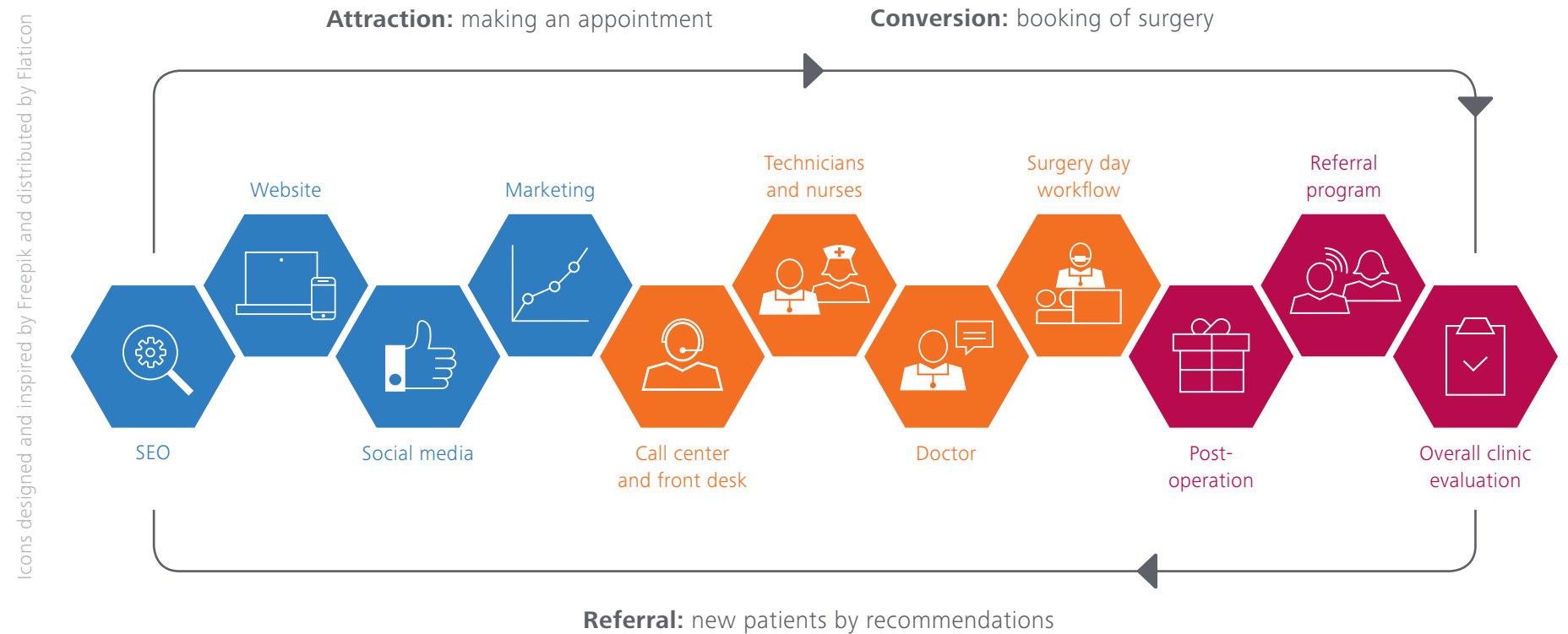
How can you attract more patients to your clinic?

Patient Conversion

How can you improve your clinic's efficiency?

Patient Referral

How can you make sure that patients recommend your clinic?



By exploring these three areas, PDC's essential goals are to:

- Grow your clinic's refractive business.
- Improve your patients' overall experience.
- Increase patient inquiries and surgeries.
- Educate patients on additional options such as SMILE.

Technical data

Installation and operating instructions

VisuMax femtosecond laser system

System components	Patient supporting system, including platform	
	Integrated uninterruptible power supply (UPS)	
	Surgical microscope with additional slit illumination	
	Video camera with integrated digital recording	
Laser parameters	Wavelength	1043 nm
	Pulse duration	220-580 fs
	Laser pulse rate	500 kHz

Installation and set-up conditions

Weight	870 kg (including patient supporting system, platform, UPS)
Recommended space requirements	4.00 m x 3.70 m (stand-alone)
	4.50 m x 3.80 m (180° setup with MEL 80)
	4.00 m x 4.00 m (90° setup with MEL 80)
Electrical connection	100-240 V, 50/60 Hz, max. 16 A
	Separately fused circuit

Operating conditions

Room temperature	18 to 25 °C
Atmospheric humidity	30 to 70 %
Accessories	Single-use contact glasses Treatment Pack (sizes S/M/L and type KP)
	Keratoplasty adapter for patient supporting system



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