



## **MEL 90 from ZEISS**

Advancing excimer laser technology



# Matching your profile precisely.

ZEISS MEL 90



// RELIABILITY  
MADE BY ZEISS



## ZEISS MEL 90

### My profile precisely

The use of excimer laser technology in refractive surgery starts in 1986 – with ZEISS. The MEL® 90\* carries that legacy forward. Successfully combining years of expertise and innovative performance features, it offers users a highly rewarding handling experience.

Specially designed for the needs of the modern refractive surgeon, the MEL 90 incorporates proven safety as well as individually configurable options. Unique product qualities like the FLEXIQUENCE® switch function, the Triple-A profile and the outstanding intra-operative ablation speed of up to 1.3 seconds per diopter\*\* create entirely new treatment prospects.

The MEL 90 from ZEISS – your preferences, your workflow, your expectations – precisely. The excimer laser that intelligently combines proven experience and exciting advancement.



\*\* LASIK, myopia, 500 Hz, OZ: 6 mm



## My preferences precisely

When viewed closely, every refractive surgeon works somewhat differently, has personal preferences and needs regarding system handling and fosters his own surgical style. You will love the way the MEL® 90 takes all of these important factors into account.

### **Applied flexibility**

#### **FLEXIQUENCE**

A true novelty – the FLEXIQUENCE® switch function lets you flexibly choose between 250 Hz and 500 Hz frequency. It allows you to combine your previous clinical experience with excimer technology as well as the innovative advantages of the MEL 90. In fact, you can have twice the speed in a fraction of a second with a simple touch of the finger – enabling you to leverage both proven reliability and new treatment opportunities.

### **Predictable and gentle**

#### **Triple-A**

The MEL 90 also features the Triple-A Advanced Ablation Algorithm. As a uniform ablation profile for a wide range of sphero-cylindrical (SCA) corrections, it simplifies treatment planning.

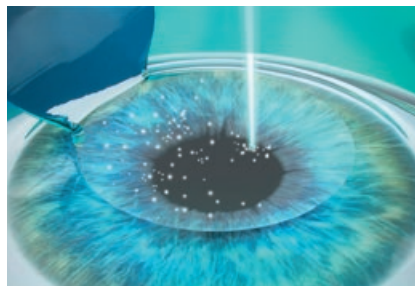
Triple-A offers a high degree of precision and predictability. In addition to intelligent energy correction, it comprises an aspherically optimized design that also focuses on minimal tissue removal. This results in gentle treatments of standard, but also eyes with higher and lower ametropias. All combined into one single ablation algorithm: Triple-A.





#### **MEL 90 power**

*With its unique FLEXIQUENCE switch function (250 Hz and 500 Hz operation) and additional configuration options the MEL 90 is a true customized power package.*



#### **MEL 90 accuracy**

*The Triple-A profile enables fast, safe and highly precise treatments. Its excellent predictability, even with astigmatism and higher ametropias, offers additional safety.*



#### **MEL 90 time**

*When performing LASIK for myopia at 500 Hz, MEL 90 can intra-operatively ablate 1 diopter in as little as 1.3 seconds. Intuitive system guidance and speedy treatment planning allow for additional time savings.*

## My workflow precisely

You will especially value the treatment-oriented functions the MEL® 90 offers. Designed to make your work noticeably easier, they are also efficient and cost-effective. You can program the system to precisely fit your needs and that of your OR team – thereby adding focus to your overall workflow.

### **Advanced system guidance**

The systems' intuitive graphic user interface supports fast treatment procedures. You can flexibly adjust the touch screen to wherever you need it and, thus, maintain a good ergonomic sitting posture throughout the operation.

### **Touch screen or keyboard control**

For additional convenience, you can choose to make entries either per touch screen or keyboard.

### **Two workstations**

Truly exceptional – a second, optional touch screen on the system, which allows the assistant to already prepare the next therapy while the surgeon is still concluding the post-operative care. Depending on the OR setup, the assistant touch screen can also be placed on a separate table.

### **Easy calibration**

With the proven fluence test, laser calibration is very quick and easy.

### **Very service friendly**

The MEL 90 is a highly reliable system requiring very little service maintenance. The unique beam path evacuation eliminates the need for flushing gas.

### **Seamless data integration**

Patient data transfer is very easy thanks to the seamless interaction between the MEL 90 and other refractive platforms from ZEISS – VisuMax® and CRS-Master®\*.





#### **MEL 90 connectivity**

*The workflow-optimized compatibility of the MEL 90, VisuMax and CRS-Master ensures a high level of practice consistency. An HD video port, network printer and PDF export capabilities offer additional workflow support.*



#### **MEL 90 teamwork**

*As a true team player, the MEL 90 greatly simplifies the interaction between the surgeon, assistant staff and system technology. When equipped with a second workstation, it can be configured to optimally complement the treatment routine of the OR team.*



#### **MEL 90 flexibility**

*Flexible touch screen positioning and optional keyboard control let you design your workstation just the way you want it.*

## My expectations precisely

Priority one, of course, is the satisfaction of your patients, which is largely dependent upon the safety and reliability of the treatment. The MEL® 90 combines high-quality elements and performance to help you optimally fulfill your customers' requirements. You and your patients will be delighted with the excellent clinical results.

### **Excellent precision**

Triple-A corrections can be performed with impressive precision and a high degree reproducibility, even for very small and very large refractive errors, both with and without astigmatism. The new ablation profile and improved energy correction also offers other advantages such as few induced spherical aberrations and tissue-saving ablation.

### **High patient comfort**

In combination, short treatments and seamless procedural flow help to enhance the patient experience. The comfortable patient supporting system ensures stress-free and stable positioning throughout the entire OR procedure.

### **Controlled OR environment**

The ZEISS exclusive sensor-controlled CCA+ plume removal system supports optimal atmospheric conditions throughout the treatment.

### **Safe eye tracking**

The MEL 90 is equipped with an active eye tracker with an excellent response time to provide high-level treatment safety with very stable results.



### **MEL 90 intelligence**

The Triple-A profile is based on an intelligent combination of refractive correction and clever energy distribution. It enables an aspherically optimized design with minimal ablation depth. As a result, treatments are faster and save tissue.



### **MEL 90 atmosphere**

The unique, sensor-controlled CCA+ plume removal system supports optimal atmospheric conditions around the patient's eye – thereby also significantly improving the predictability of the results.



### **MEL 90 outcomes**

The MEL 90 can be precisely tailored to the individual needs of the modern refractive surgical practice. Its preinstalled functions also offer surgeons optimal support for achieving excellent treatment results.

# The refractive system landscape from ZEISS

As a comprehensive, well thought-out concept, ZEISS has put together an optimally matched refractive system landscape consisting of the MEL® 90 excimer laser, the VisuMax® femtosecond laser and the CRS-Master® treatment planning station. Operating in unison, these three leading edge products support a streamlined workflow and efficient patient management.

## The MEL 90 performance spectrum

### 250 Hz

Femto-LASIK

LASIK

LASEK

PRK

PTK

### 500 Hz

Femto-LASIK

LASIK

■ PRESBYOND® Laser Blended Vision\*

■ Individualized, topography-guided treatments

■ Laser-independent sphero-cylindrical (SCA) treatment planning

## VisuMax

### Precision in all its facets

The VisuMax is a groundbreaking femtosecond system noted for its outstanding incision precision and speed as well as its gentle treatment qualities – whether for flap cuts, keratoplasty and incisions for ICR or SMILE®.

## CRS-Master

### Simple treatment planning

The CRS-Master enables efficient treatment planning – even outside of the OR – for conventional as well as customized LASIK, Femto-LASIK, PRK and LASEK corrections. With its comprehensive capabilities, the CRS-Master is a valuable instrument for virtually any practice environment.



## CRS-Master, VisuMax and MEL 90

*The optimally interlinked refractive system landscape from planning to therapy*

\* MEL 90, CRS-Master and PRESBYOND are not approved for sale in the United States.

# MEL 90

**MEL 90 outcomes** for excellent treatments

**MEL 90 connectivity** with the ZEISS refractive system landscape

Proven ZEISS optics that provide brilliant visual control

Active eye tracker for high treatment safety and very stable results

**MEL 90 time** for an intra-operative speed of up to 1.3 seconds per D

**MEL 90 accuracy** with the highly precise Triple-A ablation profile

**MEL 90 intelligence** for energy-optimized, tissue-saving ablations

**MEL 90 power** with the unique FLEXIQUENCE® switch function

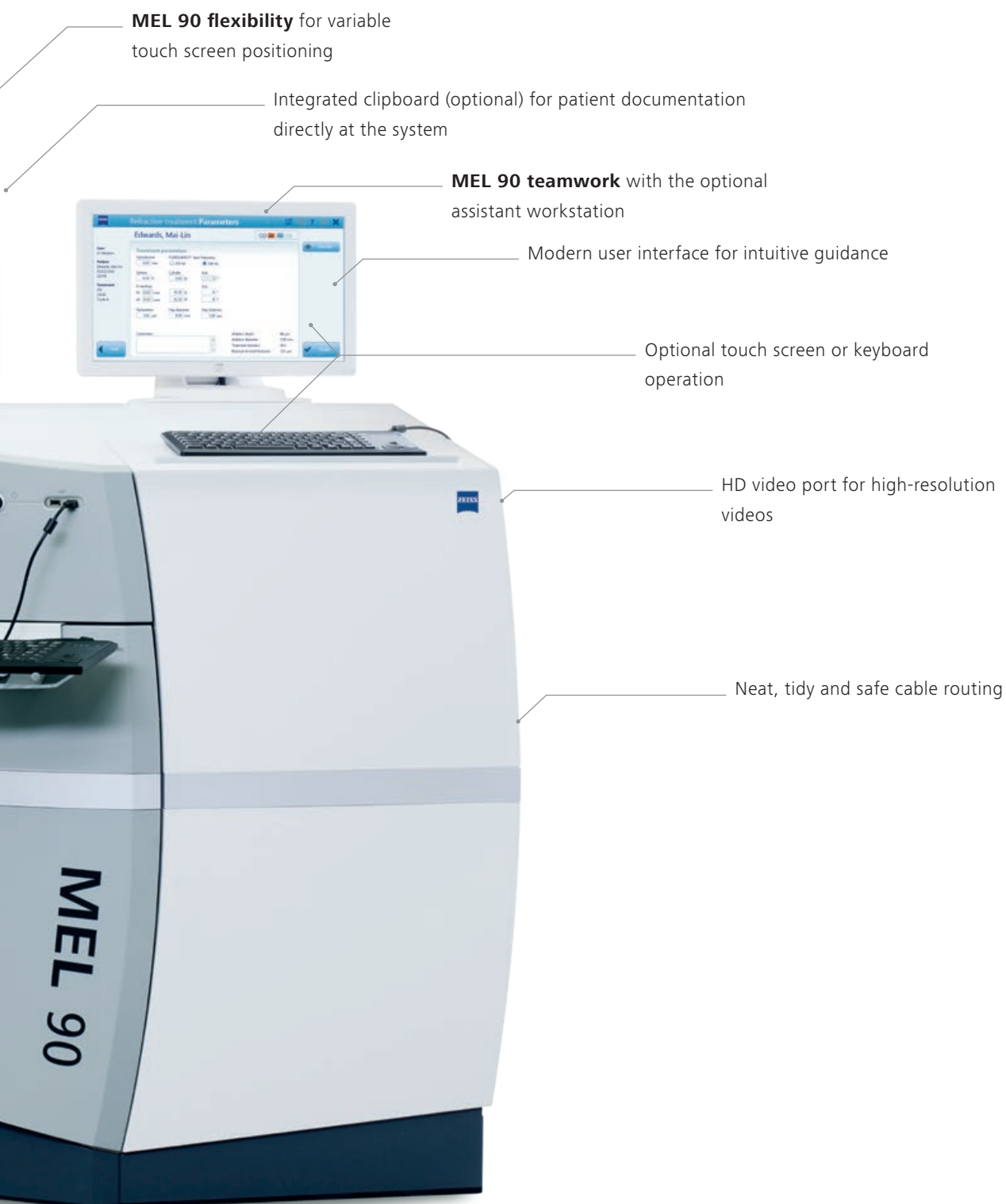
**MEL 90 atmosphere** with CCA+ for optimal atmospheric conditions during treatment

Comfortable patient supporting system for an improved patient treatment experience and stable positioning

Easy access and exchange of compressed air filter









## **PRESBYOND**

### **Laser Blended Vision**

The MEL® 90 is also a first-rate platform for treating presbyopic patients. With the optional PRESBYOND® Laser Blended Vision module, ZEISS offers an advanced and true binocular laser correction option.

### **The next level in eye care excellence**

PRESBYOND Laser Blended Vision is an individualized treatment approach in which pre-operative spherical aberrations are used to calculate the ablation profile. The functional age of the eye can also be used for the calculation. This results in an increase in the depth of field of each individual eye, creating a customized fusion of the two images for near and distance vision – the so-called “Blend Zone.”

The method enables clear sight at all distances – near, far, even intermediate – and for a wide range of indications from -8.0 to +2.0 D. Emmetropic as well as astigmatic presbyopic patients (up to 2.0 cyl) can also be treated.

Laser Blended Vision LASIK performed with PRESBYOND is tolerated by a higher number of patients than conventional mono-vision – up to 97%<sup>1</sup> as compared to only 59–67%<sup>2</sup>. In many cases, patients can read without glasses the very same day.



**PRESBYOND Laser Blended Vision**  
*Customized. All distances. Immediate.*

<sup>1</sup> Reinstein DZ, Couch DG, Archer TJ. LASIK for Hyperopic Astigmatism and Presbyopia Using Micro-monovision With the Carl Zeiss Meditec MEL 80. *J Refract Surg.* 2009;25(1):37-58.

<sup>2</sup> Evans BJ. Monovision: a review. *Ophthalmic Physiol Opt.* 2007;27(5):417-439.



# Technical data

## MEL 90 from ZEISS

Type	ArF excimer laser (laser class 4 according to IEC 60825-1:2001 and IEC 60825-1:2007)
Wavelength	193 nm
Frequency	FLEXIQUENCE® 250 Hz / 500 Hz

## Fixation laser

Type	Solid-state laser (laser class 1 according to IEC 60825-1:2001 and IEC 60825-1:2007)
Wavelength	532 nm

## System data

Weight	290 kg with gas cylinder
Weight of patient support system	232 kg
Dimensions (W x D x H)	1.63 m x 0.73 m x 1.48 m – 1.70 m
Power supply	100 V AC; 50/60 Hz; 17.5 A 120 V AC; 50/60 Hz; 14.6 A 208, 220, 230, 240 V AC; 50/60 Hz; 7.9 A
Approval	CE mark as per Medical Device Directive 93/42/EWG
Gas supply	Integrated ArF-Premix cylinder 10 l

## Equipment

Surgical microscope	OPMI® pico with integrated HD video camera
Illumination	Ring illumination: stepless adjustment; sectional light; satellite illumination; optional slit lamp illumination
Active eye tracker	Infrared, pupil and limbus tracking, 1050 frames per second (fps), manual ablation center selection, automatic Pupil Center Shift Correction
CCA+ (plume removal system)	Integrated into the device, automatic adaptation for 250 Hz / 500 Hz operation
Optional	Monitor with touch screen, keyboard, printer, CRS-Master®, PRESBYOND® Laser Blended Vision

## Spot scanning parameters

Beam dimensions	0.7 mm FWHM (full width at half maximum), Gaussian beam profile
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## Phototherapeutic keratectomy

Area ablation	Programmable PTK shaping
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## Treatment range

According to CE guidelines	-12 D to +3 D (up to 3.0 D cyl)
Technically possible	-14 D to +8 D (up to 6.0 D cyl)





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MEL 90  
CRS-Master  
PRESBYOND  
VisuMax  
SMILE



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