MEL 90

The excimer laser that intelligently combines proven experience and exciting advancement
The moment twice the speed puts the finishing touch on proven experience. This is the moment we work for.
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 new 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. You will love it.

Advanced system guidance
The systems' simple, 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.

**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.

**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.
**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 of 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

<table>
<thead>
<tr>
<th></th>
<th>250 Hz</th>
<th>500 Hz</th>
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<tbody>
<tr>
<td>Femto-LASIK</td>
<td>Femto-LASIK</td>
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<td>LASIK</td>
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<tr>
<td>LASEK</td>
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<td>PRK</td>
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<tr>
<td>PTK</td>
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- 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 the ZEISS-exclusive, minimally invasive method SMILE with ReLex®.

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.

MEL 90, CRS-Master, PRESBYOND and ReLex are not intended 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 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
MEL 90 flexibility for variable touch screen positioning

MEL 90 teamwork with the optional assistant workstation

Modern user interface for easy, intuitive guidance

Optional touch screen or keyboard operation

Integrated clipboard (optional) for patient documentation directly at the system

HD video port for high-resolution videos

Neat, tidy and safe cable routing

Additional storage compartment
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 method that far exceeds the limitations of conventional monovision.

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.

PRESBYOND Laser Blended Vision is tolerated by a higher number of patients than conventional monovision – up to 97%* as compared to only 59–67%**. In many cases, patients can read without glasses the very same day.

# MEL 90
## Technical data

### Laser data

<table>
<thead>
<tr>
<th>Type</th>
<th>ArF excimer laser (laser class 4 according to IEC 60825-1:2001 and IEC 60825-1:2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>193 nm</td>
</tr>
<tr>
<td>Frequency</td>
<td>FLEXIQUENCE 250 Hz/500 Hz</td>
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</tbody>
</table>

### Fixation laser

<table>
<thead>
<tr>
<th>Type</th>
<th>Solid-state laser (laser class 1 according to IEC 60825-1:2001 and IEC 60825-1:2007)</th>
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<tbody>
<tr>
<td>Wavelength</td>
<td>532 nm</td>
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### System data

<table>
<thead>
<tr>
<th>Weight of MEL® 90</th>
<th>290 kg with gas cylinder</th>
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<tr>
<td>Weight of patient support system</td>
<td>232 kg</td>
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<tr>
<td>Dimensions of MEL 90 (W x D x H)</td>
<td>1630 mm x 730 mm x 1480 – 1700 mm</td>
</tr>
</tbody>
</table>
| 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

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

<table>
<thead>
<tr>
<th>Beam dimensions</th>
<th>0.7 mm FWHM (full width at half maximum), Gaussian beam profile</th>
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### Phototherapeutic keratectomy

<table>
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<tr>
<th>Area ablation</th>
<th>Programmable PTK shaping</th>
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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)