



MCO 25plus and MCO 50plus

*All essential Parameters
constantly in Focus*

- Otorhinolaryngology
- Gynaecology
- Dermatology
- Aesthetic surgery
- General surgery
- Proctology



MCO 25plus and MCO 50plus

All essential Parameters constantly in Focus

The CO₂ laser is the classic medical laser. It has been used in numerous surgical fields with great success for many years. With the new CO₂ lasers MCO 25plus and MCO 50plus, KLS Martin offers state-of-the-art, cutting-edge laser technology. Whether you consider its uncomplicated operating philosophy, its excellent optical properties or the comprehensive, innovative range of accessories – the MCO25/50plus gives you lots of reasons to decide in favor of a KLS Martin CO₂ laser.

12 good reasons that make a truly convincing case:

- Quick Tip panel for easy and time-saving parameter selection
- Easy-moving beam delivery system with excellent beam characteristics
- Safe locking of the articulated (mirror-joint) arm in two different positions
- Versatile, user-oriented operating modes such as ultra-short single pulses, superpulse mode and cycle mode
- Reliable beam guidance with minimal spot sizes and high power densities
- Five program storage locations for saving user-defined parameter sets
- Integrated, programmable "Soft Scan plus R" scanner for multi-disciplinary use in conjunction with different handpieces and micromanipulators
- Special LineScan function for robotic vocal cord surgery
- Micro scan patterns for laser-assisted stapedial surgery
- Micromanipulator Micro Point 2 with minimal spot size of 0.11 mm and highest power densities
- Possibility to select and turn scan patterns directly via the Micro Point micromanipulator
- Comprehensive range of accessories for numerous medical fields (ENT, gynaecology, dermatology, etc.)

Take your Seat in the Cockpit

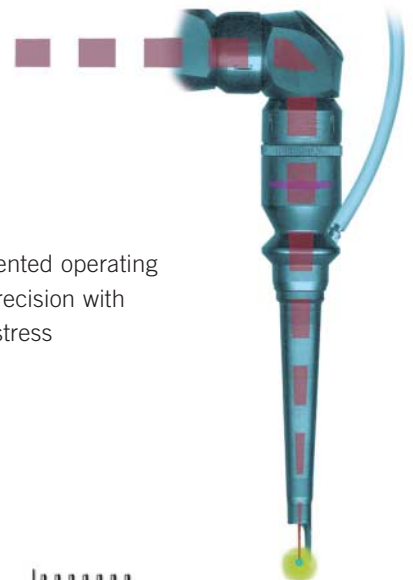


Quick-Tip-Panel

Straightforward operating interface, uncomplicated operating philosophy – properties that any user appreciates. The Quick-Tip panel guarantees easy and fast parameter selection. Only the parameters relevant to the operating mode used are automatically displayed at a time – the essentials in focus!



Five program storage locations, enabling you to save your own sets of parameters



Versatile, user-oriented operating modes. Utmost precision with minimal thermal stress



Pulse train



Superpulse mode



Pulse train



Single pulse



Cycle mode



Single pulse



Superpulse

*As little as possible,
as much as necessary*



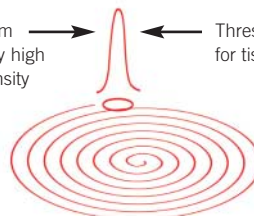
The digital scanner system SoftScan plus R comes as an integrated part of the laser unit. It offers controlled, reproducible tissue ablation for use in numerous surgical fields – gentle, tissue-sparing laser application for the benefit of the patient.

Integrated, multidisciplinary scanner “SoftScan plus R”

for controlled, superficial tissue vaporization in general and aesthetic surgery. Different handpieces and micromanipulators are available for easy handling. The tissue ablation rate can be controlled via different scanning speeds.



Laser beam with a very high power density → Threshold for tissue ablation



Tissue ablation effect

Micro Point 2 and Mini Point Unbeatable Variability

The Micro Point 2 and Mini Point micromanipulators enable you to use the system with all commonly available operating microscopes. Together with the CO₂ laser systems, they constitute the “power pack” for microsurgery – offering extremely high power densities with minimal spot sizes.



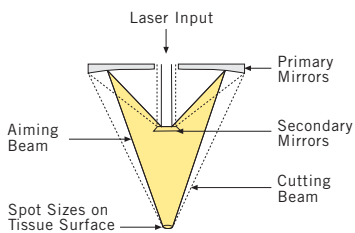
76-400-00-04

“Mini Point” micromanipulator for gynaecology, proctology
Adapters available for connecting operating microscopes and
colposcopes from different manufacturers (see page 11)



76-402-00-04

“Micro Point 2” micromanipulator for ENT,
(Separate brochure 90-853-02 available on request!)
Adapters available for connecting operating microscopes and
colposcopes from different manufacturers (see page 11)



Spiegelaufbau Micro Point 2/2 R

Micro Point 2 S

Precision at the highest Level

MCO 25plus and MCO 50plus with scanner system SoftScan plus R and micromanipulator Micro Point 2 S – the highly sophisticated laser system for robotic microsurgery in laryngeal surgery.



76-422-00-04

Micromanipulator "Micro Point 2 S" including Micro Switch for selecting and rotating scan patterns

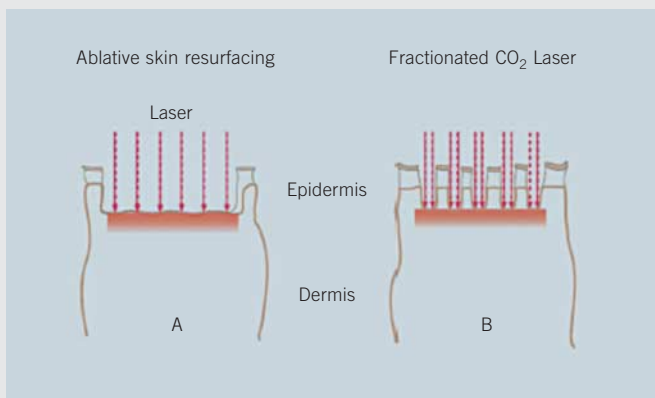



Corpectomy with LineScan function



(With kind support from the Istituto Europeo di Oncologia, Milan, Italy. F. Chiesa, M. Ansarin / ENT)

MCOplus *skinFrac* – No compromise in Aesthetics and Surgery



	MAX POWER	20 W
	FIGURE SIZE	3 mm
	FILL FACTOR	STRONG
ENERGY DENSITY 3.7 J/cm²	SOFT FRAC	144 mm
	CYCLE PAUSE	OFF
	PILOT	100 %

The 2 in 1 solution for aesthetics

No compromises anymore with the availability of full aesthetic and surgical capabilities in one CO₂ laser unit. In terms of beam quality and thermal tissue effect, the CO₂ lasers of the MCOplus series by KLS Martin have set highest standards in recent years.

Especially the unique superpulse function with minimal pulse activation times of 0.3 ms and maximum output powers of 250 W (MCO 25plus) or 500 W (MCO 50plus) have changed the way of performing surgery due to the possibility of setting a „cold laser cut“ with minimized thermal damage to surrounding tissue.

With the new skinFrac function the MCOplus lasers can be equipped with full aesthetic capabilities for state-of-the-art fractional treatments.

Fractionated vs. ablative scanning

While the classic ablative scan vaporizes large and defined tissue surfaces, fractionated scanning allows punctuated vaporization of microscopically small tissue surfaces. As a result, fractionated scanning is less traumatic to the skin and the healing process is being accelerated.

Additionally the stimulation of production of new collagen in the dermis can be performed by applying finest energy columns which penetrate into the dermis and spare the largest part of the skin surface.

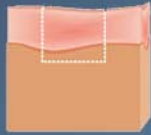
Wide choice of indications

The skinFrac option allows working in five different work modes for optimized cosmetic results.

In softFrac mode, dots of a diameter of 0.8 mm are being ablated on a defined surface. Patients where skin resurfacing is being performed benefit from decreased trauma to the skin compared with the classic ablative technique. Also healing times are significantly reduced compared to the classic method.

The powerFrac mode allows the penetration of the skin into the dermis by finest energy columns with a diameter of just 0.15 mm. The result is the stimulation of production of new collagen. Especially for deeply situated conditions such as acne scars the patient benefits from a less traumatic treatment and faster healing times than with the classic ablative technique.

Additionally the system provides all classical CO₂ laser modes such as the „cold cut“ in superpulse mode, ablative scan focussed and defocussed application for surgical cutting and coagulation.



Up to 0.2 mm (MCO 25plus)
Up to 0.3 mm (MCO 50plus)



0.8 mm
Max. figure size 10 x 10 mm



76-501-08-04
Handpiece softFrac



Up to 2 mm
(MCO 25plus, 50plus)



0.15 mm
Max. figure size 5 x 5 mm



76-502-01-04
Handpiece powerFrac

The skinFrac option offers:

- Wide range of cosmetic and surgical indications
- Intuitive user interface
- Adjustable setting of penetration depth and spot density
- Reduced healing times compared to ablative scanning
- Five work modes for cosmetic and surgical treatments including „cold cut“ in superpulse
- Excellent haemostasis in continuous wave mode
- High return-on-investment by upgradability of existing MCOplus lasers

Order information

For MCOplus lasers production date 2013 and younger:

76-501-08-04 Handpiece softFrac

76-502-01-04 Handpiece powerFrac

Upgrade for existing MCOplus lasers until and including production date 2012 with scanner:

76-500-49-04 softFrac upgrade



76-100-05-04
Focusing handpiece, 50 mm, complete (for dermatology and aesthetic surgery)



76-100-06-04



76-100-10-04*
Focusing handpiece, 127 mm, complete (standard handpiece)



76-100-11-04



76-100-15-04
Focusing handpiece, 200 mm, complete (for ENT/pharyngeal surgery)



76-100-16-04



76-500-50-04**
Scanner handpiece, 127 mm, complete (for dermatology and aesthetic surgery)



76-500-51-04



76-500-60-04**
Scanner handpiece, 200 mm, complete (for dermatology and aesthetic surgery)



76-500-61-04



76-500-31-04**
"SoftScan plus R" scanner box (w/o handpiece)



76-500-41-04
Mini Point connector



76-500-42-04
Micro Point connector



76-501-08-04
Handpiece softFrac



76-502-01-04
Handpiece powerFrac



76-100-20-04
Backstop for 127-mm focusing handpiece
(for ENT/pharyngeal surgery)



76-100-25-04
Backstop for 200-mm focusing handpiece
(for ENT/pharyngeal surgery)



76-200-15-04
Adapter for angled working parts
for 200-mm focusing handpiece



76-200-05-04
90° angled working part,
for 127-mm focusing handpiece
and 200-mm focusing handpiece
(in conjunction with adapter 76-200-15-04)



76-200-10-04
120° angled working part,
for 127-mm focusing handpiece
and 200-mm focusing handpiece
(in conjunction with adapter 76-200-15-04)

76-600-00-04 Special optics set for nasal operations, consisting of:



76-600-01-04
ENT optics



76-600-04-04
120° attachment for ENT optics



76-600-03-04
90-degree attachment for ENT optics



76-600-02-04
0-degree attachment for ENT optics



76-600-05-04
Brush for ENT attachments

Dental tip available on request

Ordering Data

Laser Units and Accessories

Ordering Data

KLS Martin CO₂ Laser MCO 25plus	
consisting of basic unit (25 W), articulated (mirror-joint) arm, 27-mm standard focusing handpiece, power cord, foot switch	77-025-01-04
with pilote module ENT	77-025-01-21
KLS Martin CO₂ Laser MCO 25plus	
with integrated scanner (standard accessories same as 77-025-01)	77-025-11-04
with pilote module ENT	77-025-11-21
KLS Martin CO₂ Laser MCO 50plus	
consisting of basic unit (50 W), articulated (mirror-joint) arm, 127-mm standard focusing handpiece, power cord, foot switch	77-050-01-04
with pilote module ENT	77-050-01-21
KLS Martin CO₂ Laser MCO 50plus	
with integrated scanner (standard accessories same as 77-050-01)	77-050-11-04
with pilote module ENT	77-050-11-21
General accessories	
Focusing handpiece, 50 mm (complete, incl. detachable tip)	76-100-05-04
Tip, detachable, for 50-mm focusing handpiece	76-100-06-04
Focusing handpiece, 127 mm (complete, incl. detachable tip)	76-100-10-04
Tip, detachable, for 127-mm focusing handpiece	76-100-11-04
Focusing handpiece, 200 mm (complete, incl. detachable tip)	76-100-15-04
Tip, detachable, for 200-mm focusing handpiece	76-100-16-04
Backstop for 127-mm focusing handpiece	76-100-20-04
Backstop for 200-mm focusing handpiece	76-100-25-04
90° angled working part for 127-mm focusing handpiece	76-200-05-04
120° angled working part for 127-mm focusing handpiece	76-200-10-04
Adapter for angled working parts for 200-mm focusing handpiece	76-200-15-04
CO ₂ laser protective goggles ¹	76-100-50-04
CO ₂ laser protective goggles for spectacle wearers ²	76-100-51-04
Combined CO ₂ and Nd:YAG laser protective goggles ³	79-100-50-04
Combined CO ₂ and Nd:YAG laser protective goggles for spectacle wearers ⁴	79-100-51-04
Pad for laser protection goggles (for item no. 76-100-51-04/79-100-51-04)	79-101-51-04
Strap for laser protection glasses (for item no. 76-100-51-04/79-100-51-04)	79-101-50-04

All laser units are available with or without scanner.

¹ D 9000–10600 L5 RH DIN CE acc. to 89/686/EEC (PPE)

² D 9000–11000 L4 RH DIN CE acc. to 89/686/EEC (PPE)

³ D 1060 L6 RH DIN CE acc. to 89/686/EEC (PPE) / DI 10600 nm L4 RH DIN CE

⁴ D 1060 L7 RH DIN CE acc. to 89/686/EEC (PPE) / DI 10600 nm L3 RH DIN CE

⁵ ZEISS adapter inclusive

Ordering Data

Micromanipulators

"Mini Point" (gynaecology, proctology)	76-400-00-04
"Micro Point 2" (ENT) ⁵	76-402-00-04
"Micro Point 2 S", incl. Micro Switch (ENT) ⁵	76-422-00-04

Adapters for Mini Point

Adapter, Zeiss system	76-400-10-04
Adapter, Möller-Wedel system	76-400-12-04
Adapter, Leica system	76-400-13-04
Adapter, Zeiss OPMI FC 1	76-400-14-04
Adapter, Möller-Wedel VM 500	76-400-15-04
Adapter, Leica M 841	76-400-16-04
Adapter, Olympus OCS-500	76-400-17-04
Adapter, Zeiss 150 FC	76-400-18-04

(other adapters available on request)

Adapters for Micro Point 2 and Micro Point 2 S

Adapter, Leica M 650/651/655 systems (other adapters available on request)	76-401-01-04
Adapter, Leica M 680	76-401-02-04
Adapter, Möller-Wedel VM 900	76-401-03-04
Adapter, Leica M 841, complete	76-401-16-04
Adapter, Olympus OCS-500	76-401-17-04
Adapter, Opmi Drape, complete	76-401-18-04
Adapter, Opmi 6, complete	76-401-19-04
Adapter, Leica M 520, complete	76-401-20-04

Adapters for Mini Point, Micro Point 2 and Micro Point 2 S

Adapter, Kaps system 42/52/62	76-401-11-04
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Micro Switch for micromanipulator

Micro Point 2 in connection with LineScan	76-401-30-04
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Scanner

"SoftScan plus R" scanner retrofit kit or MCO 25plus	76-500-01-04
"SoftScan plus R" scanner retrofit ki for MCO 50plus	76-500-02-04
The retrofit kits (complete) include:	
- scanner head, complete	- 76-500-31-04
- scanner connecting cable	- 76-500-40-04
- scanner handpiece, 127 mm (complete, incl. tip)	- 76-500-50-04
- scanner handpiece, 200 mm (complete, incl. tip)	- 76-500-60-04
- incl. all technical components	
Adapter for connecting "SoftScan plus R" to "Mini Point"	76-500-41-04
Adapter for connecting "SoftScan plus R" to "Micro Point"	76-500-42-04
Tip for 127-mm handpiece	76-500-51-04
Tip for 200-mm handpiece	76-500-61-04

Accessories for laparoscopy

Optics, f = 400 mm, laparoscopic connector Karl Storz/Olympus	76-301-00-04
Connector Olympus complete (w/o optics)	76-302-00-04
Connector Karl Storz complete (w/o optics)	76-303-00-04

Special accessories

Special optics set for nasal operations,	76-600-00-04
consisting of:	
- optics	- 76-600-01-04
- 0-degree attachment for optics	- 76-600-02-04
- 90-degree attachment for optics	- 76-600-03-04
- 120-degree attachment for optics	- 76-600-04-04
- brush for attachments	- 76-600-05-04

Technical Data

Laser Units and Accessories

Technical Data

	MCO 25plus	MCO 50plus
Type of laser	MCO 25plus	MCO 50plus
Wavelength	10.6 µm, infrared	10.6 µm, infrared
Laser power (applied to tissue)	2–25 W	2–50 W
CO ₂ laser tube	sealed off, DC-excited	sealed off, DC-excited
Operating modes:		
- continuous-wave (CW)	2–25 W	2–50 W
- superpulse	0.3 ms; 11 W, average, max. power	0.3 ms; 16 W, average, max. power
- single pulse	5 ms – 10 s output power: 10–25 W	10 ms – 10 s, output power: 10–50 W
- pulse train	minimum pulse length: 5 ms average output power: < 0.1 – 25 W	minimum pulse length: 8 ms average output power: < 0.1 – 50 W
- cyclically repeated pulses	cycle length: - permanent - 10 ms – 10 s	cycle length: - permanent - 10 ms – 10 s
Pilot laser light	Diode laser, continuously adjustable 635 nm, ≤ 5 mW, light-red	Diode laser, continuously adjustable 635 nm, ≤ 5 mW, light-red
Laser beam delivery	Articulated spring arm with 7 joints/mirrors, arm length = 1,300 mm, handpiece exchangeable	Articulated spring arm with 7 joints/mirrors, arm length = 1,300 mm,
Focus diameter	0.08 mm with a focal distance of 50 mm (spot size) 0.20 mm with the standard focal distance of 127 mm 0.32 mm with a focal distance of 200 mm	0.08 mm with a focal distance of 50 mm (spot size) 0.20 mm with the standard focal distance of 127 mm 0.32 mm with a focal distance of 200 mm
Operator/control panel	Bluemode LCD (liquid crystal display) with illuminated buttons featuring symbols, keypad sealed, with integrated scanner functions	Bluemode LCD (liquid crystal display) with illuminated buttons featuring symbols, keypad sealed, with integrated scanner functions
Program memory	5 freely assignable memory locations (can be used for scanner as well)	5 freely assignable memory locations (can be used for scanner as well)
Cooling	internal	internal
Power requirements	230 V / 4 A, 50 / 60 Hz	230 V / 4 A, 50 / 60 Hz
Protection class	I	I
Type (of applied part)	B	B
Laser class	4	4
Dimensions	290 x 450 x 1,950 mm	290 x 450 x 2,170 mm
Height with articulated arm folded down:	1,180 mm	1,630 mm
Weight	57 kg	62 kg

Technical Data

Optional Accessories

Mini Point micromanipulator

Zoom range continuously adjustable between 200 and 400 mm

Focal length	200 mm	250 mm	300 mm	350 mm	400 mm
Spot diameter	0.36 mm	0.47 mm	0.56 mm	0.65 mm	0.76 mm
Power density (with 25 W)	24.5 kW/cm ²	14.5 kW/cm ²	10.2 kW/cm ²	7.5 kW/cm ²	5.5 kW/cm ²

Micro Point 2 / Micro Point 2 S micromanipulator

Zoom range continuously adjustable between 225 and 500 mm

Focal length	225 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm
Spot diameter	0.110 mm	0.120 mm	0.130 mm	0.135 mm	0.140 mm	0.145 mm	0.150 mm
Power density (with 25 W)	263 kW/cm ²	221 kW/cm ²	188 kW/cm ²	175 kW/cm ²	163 kW/cm ²	151 kW/cm ²	141 kW/cm ²

SoftScan plus R scanner

6 different scan patterns in different sizes and positions for tissue vaporization

3 different line patterns with variable length for robotic tissue resection

Electronically rotatable micro scan patterns ranging from 0.4 mm to 2.0 mm, especially for otology

Rotation via micromanipulator Micro Point

Operating/control functions integrated into the laser unit's display screen

Irradiation time per treatment spot (depending on selected parameters) 0.15–1.2 ms

Scan pattern representation with pilot laser during treatment pauses as well

Energy densities with 127-mm handpiece: MCO 25plus: max. 24 J/cm²
MCO 50plus: max. 48 J/cm²

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