

BY DEKA SURGICAL

SmartXide² TRIO

The only **three-in-one** ENT laser platform.
Scanner-assisted CO₂ articulated arm, flexible
CO₂ hollow fiber and an optional high-power
diode module — in one system.

- RF-excited CO₂ source with PSD® pulse shaping
- EasySpot Hybrid + HiScan Surgical scanning
- Optional 980 nm diode module, retrofittable



10.6 μm
CO₂ WAVELENGTH

60 W
MAX CW / U-PULSE POWER

< 50 μm
THERMAL DAMAGE MARGIN

140 μm – 4.5 mm
SPOT DIMENSION RANGE

01 PLATFORM OVERVIEW

Three delivery paths. One laser platform.

The SmartXide² TRIO combines the accuracy of a scanner-assisted laser, the flexibility of CO₂ fiber delivery, and an optional high-power diode module in a single comprehensive system for the full spectrum of ENT microsurgery.

Built around DEKA's RF-excited CO₂ laser source with exclusive PSD® (Pulse Shape Design) technology, the TRIO generates variable peak pulses optimised for surgical precision, in synergy with the HiScan Surgical scanning system and the EasySpot Hybrid micromanipulator.

The result is clean cutting edges with minimal tissue charring, minimal thermal damage to perilesional tissue, and full control over ablation area, depth and coagulation — from phonosurgery to stapedotomy.

3 delivery paths

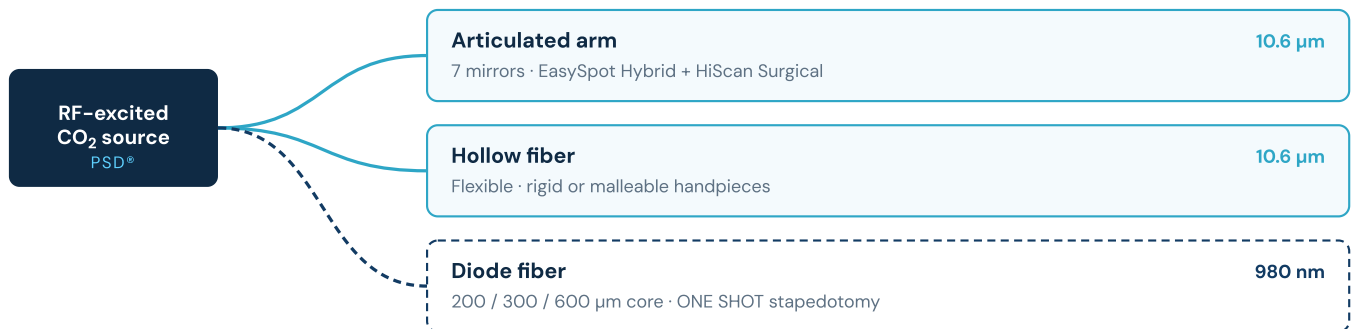
ARM · FIBER · DIODE

5 emission modes

CW · SP · DP · HP · UP



Fig. 1 EasySpot Hybrid micromanipulator with the HiScan Surgical scanning system, mounted to the articulated arm.



DASHED PATH = OPTIONAL DIODE MODULE, RETROFITTABLE AT ANY TIME

Fig. 2 Platform architecture. A single RF-excited CO₂ source feeds the articulated arm and the hollow fiber; the optional diode module adds an independent 980 nm fiber path and can be integrated into the TRIO at any time.

Defining characteristics

RF-excited CO₂ + PSD®

Greater energy above the ablation threshold than continuous-supply sources: U-Pulse delivers massive energy in microseconds for ablation with minimal charring.

EasySpot Hybrid

Scan-assisted microsurgery with holographic lens and high-reflectance mirror optics. Single-ring focus with focal-point memory and joystick beam centering.

HiScan Surgical

Beam movement in 100 millionths of a second across six surgical geometries up to 6.3 mm, for precise, reproducible ablation and cutting.

MicroScan Surgical

Miniaturised scanning for free-hand oropharyngeal procedures. Multi-function key for beam centering and scanner activation without leaving the field.

CO₂ hollow fiber

Flexible delivery reaching the middle ear and nasal cavity with rigid or malleable handpieces, spatula or flat tips, and integrated smoke extraction.

Diode laser module

Optional 980 nm fiber laser enabling the ONE SHOT stapedotomy technique and access beyond the reach of the articulated arm.

02 LASER SOURCE & PSD®

Precision at the pulse level.

The TRIO uses an RF-excited source with Pulse Shape Design, generating variable peak pulses of differing structure, duration and power output to match the full range of ENT clinical conditions.

MODE		POWER	CLINICAL ROLE
CW	Continuous wave	0.5–60 W	Stapedotomy, coagulation. No acoustic effect.
SP	Single pulse	0.1–15 W	Discrete, timed energy delivery.
DP	Double pulse	0.1–15 W	Paired pulses with controlled delay.
HP	High pulse	0.1–15 W	Elevated peak within the pulsed envelope.
UP	Ultrapulse (U-Pulse)	0.5–60 W	Massive energy in microseconds. Ablation with minimal charring.

Fig. 3 The five emission modes and their published power envelopes. U-Pulse and CW are highlighted as the two modes with access to the full 60 W envelope.

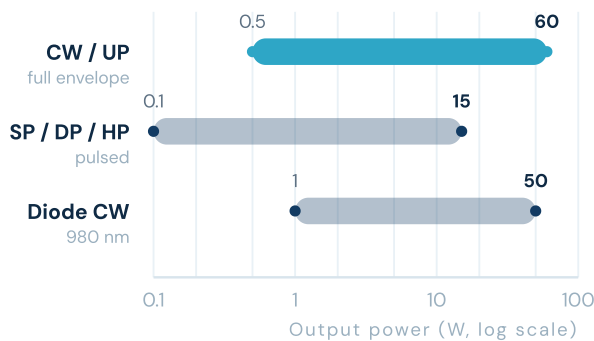


Fig. 4 Output-power envelopes on a common logarithmic axis. The diode bar shows the module's rated 50 W continuous-wave ceiling.

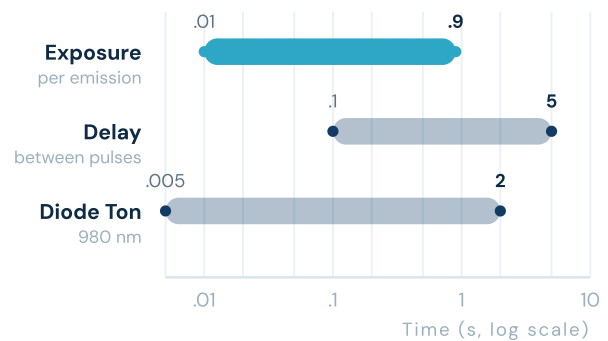


Fig. 5 Timing envelopes. Exposure and delay are independently selectable, giving direct control of duty cycle and accumulated thermal load.

Why RF excitation

RF-excited sources produce significantly greater energy above the ablation threshold than continuous-supply CO₂ lasers at comparable pulse length, enabling faster, cleaner ablation with less collateral thermal damage.

- **U-Pulse** — massive energy in microseconds for perfect ablation with minimal tissue charring. The reference mode for ENT microsurgery and phonosurgery.
- **Real CW** — continuous output with no acoustic effect. The preferred mode for stapedotomy and precision coagulation.

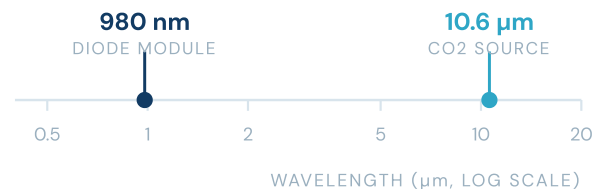


Fig. 6 The two wavelengths available on the platform, positioned on a logarithmic wavelength axis. The optional diode module operates an order of magnitude below the CO₂ line.

03 DELIVERY MODES

Reach every anatomy without changing platform.

Each delivery path addresses a distinct set of surgical conditions. All three are driven from the same console and the same 15.6-inch touchscreen control panel.

01 CO₂ LASER

Articulated Arm

The gold standard for ENT laser microsurgery. The 7-mirror articulated arm delivers scanner-assisted CO₂ laser with RF-excited precision and PSD® technology for extremely safe and reproducible treatments.

- Electronic scanning systems for precise, reproducible treatments
- High-precision micromanipulators (EasySpot Hybrid)
- Dedicated handpieces with various focal lengths
- Extended 43-inch Titanium arm for enhanced reach, easy maneuverability and maximum stability

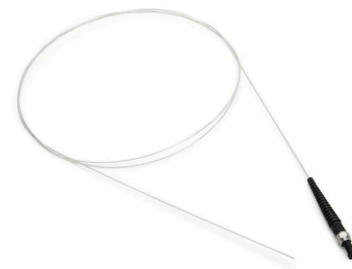


02 CO₂ LASER

Hollow Fiber

Flexible CO₂ laser delivery that reaches the most difficult anatomical areas. Works with rigid or malleable handpieces of various shapes and lengths, for open or endoscopic use.

- Reaches areas inaccessible to the articulated arm
- Rigid and Malleable fiberoptic handpiece options
- Spatula or flat tips available
- Robotic Introducer, enabling the use of the CO₂ Hollow Fiber in robotic-assisted procedures



03 DIODE LASER MODULE

Fiber (980 nm)

An additional 980 nm wavelength via flexible fiber optics expands the range of available ENT procedures. The diode laser and fiber delivery system allows the surgeon to operate even in the hardest conditions.

- 980 nm wavelength, up to 50 W output
- Fiber optics reach the middle ear, nasal turbinates, and nasal cavity
- Enables the ONE SHOT stapedotomy technique
- Single-use or up to 10x reusable fiber options (200–600 µm core)
- Optional upgrade that integrates into the TRIO at any time



7 mirrors

ARTICULATED ARM

980 nm

DIODE WAVELENGTH

200–600 µm

DIODE FIBER CORES

10 ×

REUSABLE FIBER OPTION

The diode laser module is an optional upgrade that integrates into the TRIO at any point in the platform's life. Fiber optics reach the middle ear, nasal turbinates and nasal cavity, and enable the ONE SHOT stapedotomy technique. Fibers are supplied single-use or in a variant reusable up to ten times.

04 EASYSLOT HYBRID

Safety. Reproducibility. Ease of use.

The EasySpot Hybrid micromanipulator combines holographic lens technology with high-reflectance mirrors, giving the surgeon complete control over spot dimension, scanning shape and focal depth without moving their eyes from the microscope.

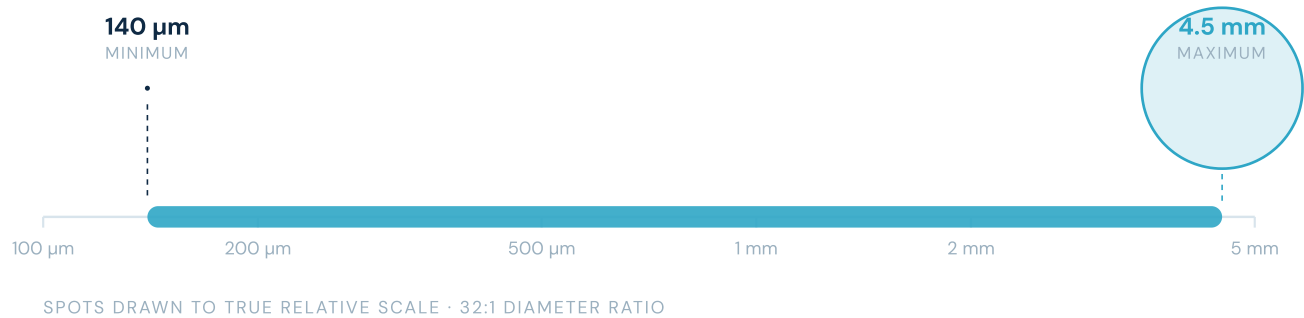


Fig. 7 Spot dimension range of the EasySpot Hybrid micromanipulator. The minimum and maximum spots above the axis are drawn to true relative scale — a 32:1 ratio between the finest incisional spot and the widest defocused spot.

Software-guided precision

- **Minimal thermal damage** — less than 50 microns to perilesional tissues.
- **Minimal tissue charring** — clean cutting edges and cleanliness of cut.
- **Cutting length & ablation area control** — full control over treatment depth and coagulation percentage.
- **Two working modalities** — “Depth” and “Power” modes for different clinical needs.
- **Software-guided procedure** — both focusing and beam centration are guided automatically.

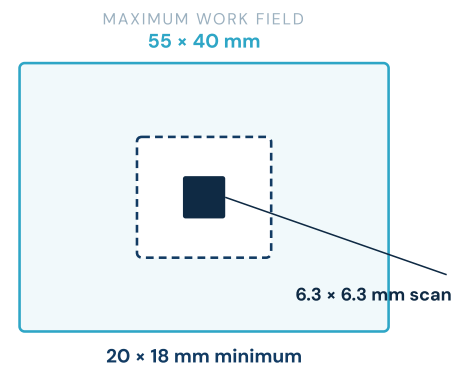


Fig. 8 Work-field envelope at 400 mm EFL, with the maximum HiScan scan area shown at the same scale.

The four controls

Easy Control

Four functions on an exclusive microswitch joystick: shape rotation, dimension adjustment, Scan-ON/OFF and fine beam centering. Without moving your eyes from the microscope.

Easy Field

Mechanical control of the working area confines the laser beam precisely within the operating field. Easy and safe.

Easy Focus

Hybrid focusing system (holographic lens and high-reflectance mirrors) with single-ring focus/defocus and focal-point memory.

Easy Plug

Fast connections and internal wiring for rapid setup.

140 µm
FINEST SPOT

4.5 mm
WIDEST SPOT

4 functions
JOYSTICK MICROSWITCH

55 x 40 mm
MAX WORK FIELD

05 HISCAN & MICROSCAN SURGICAL

Ultra-fast, reproducible beam movement.

HiScan Surgical moves the laser beam in 100 millionths of a second with minimum dwell time, producing high-precision scanning geometries up to 6.3 mm for tissue cutting and ablation. MicroScan Surgical extends the same control to free-hand work outside the microscope.

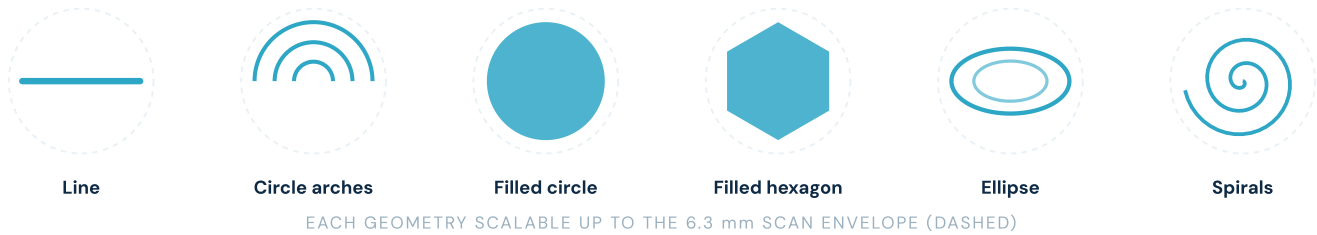
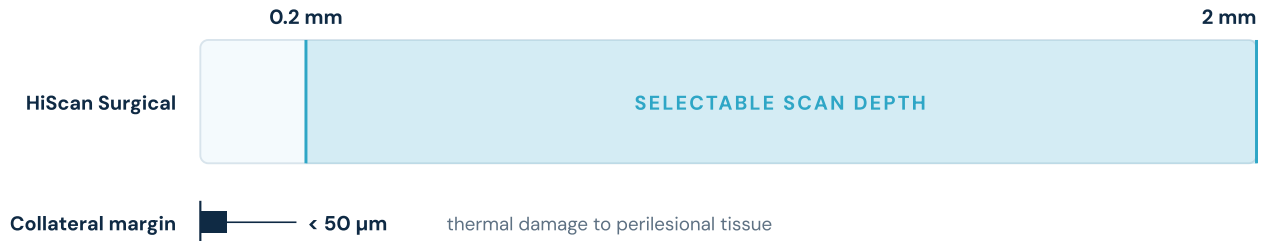


Fig. 9 The six scanning geometries available for surgery, each scalable up to the 6.3 × 6.3 mm envelope. Dwell time is selectable from 100 µs to 45 ms.



BOTH SCALES IDENTICAL · 1 mm = 197 pt

Fig. 10 Selectable scan depth against the collateral thermal margin, plotted on one common scale. The margin to perilesional tissue stays below 50 µm across the whole depth range.

100 µs

MINIMUM DWELL TIME

45 ms

MAXIMUM DWELL TIME

0.2–2 mm

SCAN DEPTH RANGE

6

SCANNING GEOMETRIES

MicroScan Surgical

A miniaturised scanning system for free-hand ENT procedures, extending scan-assisted precision to oropharyngeal and endoscopic applications outside the microscope field. A single multi-function key handles beam centering, scanning shape control and activation without interrupting the surgical workflow.

- **Multi-function key** — one control for beam centering and scanner activation/deactivation.
- **4"–8" EFL compatibility** — integrates with the full handpiece range.
- **No microscope required** — operates independently for free-hand endoscopic ENT use.
- **Rapid setup** — fast connection and internal wiring alongside EasySpot Hybrid.

06 CLINICAL APPLICATIONS

The technological solution for all ENT treatments.

The SmartXide² TRIO has demonstrated clinical efficacy across a broad range of ENT and laryngology procedures, with documented outcomes including multi-month follow-ups.

Vocal Cord Polyp

Precise laser ablation with minimal thermal damage to surrounding tissue

Squamous Cell Carcinoma (T1a / T3)

Scan-assisted microsurgery enabling controlled, reproducible resection

Recurrent Respiratory Papillomatosis

Repeatable treatments with clear follow-up documentation capability

Posterior Cordotomy

High-precision laser work in narrow anatomical fields

Bilateral Vocal Cord Paralysis (post-thyroidectomy)

Safe and reproducible laser treatment after total thyroidectomy

CLINICAL EVIDENCE

Clinical cases documented and shared by leading ENT surgeons across Europe and Latin America, with follow-ups of up to 12 months.

Courtesy of Stefano Dallari, M.D. (Ospedale di Fermo, Italy) and Guillermo Campos, M.D. (Fundación Santa Fé University Hospital, Bogotá DC, Colombia).

Procedural range

The platform is designed for the full spectrum of ENT microsurgery. The articulated arm with EasySpot Hybrid covers microscope-based laryngeal work; the hollow fiber reaches the middle ear and nasal cavity where the arm cannot; the diode module adds fiber-optic access and the ONE SHOT stapledotomy technique.

- **Phonosurgery** — scan-assisted resection with clean cutting edges and a sub-50 µm collateral margin.
- **Laryngeal oncology** — controlled, reproducible resection under scanner assistance.
- **Otology** — real CW for stapedotomy, with no acoustic effect; ONE SHOT with the diode fiber.
- **Rhinology** — hollow fiber and diode access to turbinates and the nasal cavity.

Clinical education library

DEKA maintains a public surgical video library covering ENT and adjacent specialties, available through the manufacturer's official channel.

ENT & laryngeal surgery

Gynecology

Wound healing

Neurosurgery

Access to the full library, procedure-specific case reviews and in-person demonstrations can be arranged through Pure Novamed.

Clinical disclaimer. The DEKA SmartXide² TRIO is a Class 4 laser appliance intended for use by qualified physicians and surgeons. All clinical applications should be undertaken in accordance with applicable regulations, institutional protocols and applicable safety standards. Individual results may vary. Clinical cases referenced above are the documented experience of the named investigators and are not a representation of expected outcomes.

07 SPECIFICATIONS

Technical data.

CO₂ LASER. MAIN SOURCE

Type of Laser	CO ₂ , RF-PSD®
Wavelength	10.6 µm
Laser Emission Mode	TEM ₀₀
Emission Modes	CW · SP · DP · HP · UP
CW / UP Power	0.5–60 W
SP / DP / HP Power	0.1–15 W
Exposure Time	0.01–0.9 seconds
Delay Time	0.1–5 seconds
Transmission System	7-mirror articulated arm or flexible hollow fiber
Control Panel	15.6" LCD color touchscreen, adjustable in 4 directions
Power Supply	100–230 Vac, 50/60 Hz
Size & Weight	236 × 62 × 56 cm · 100 kg

HISCAN SURGICAL SCANNING SYSTEM

Max Scanning Area	6.3 × 6.3 mm @ 400 mm EFL
Dwell Time	100 µs, 45 ms
Scan Depth	0.2–2 mm
Scanning Shapes	Line, circle arches, filled circle, filled hexagon, double interpolated ellipse, spirals
Emission Modes	CW · UP

HIGH-POWER DIODE LASER (OPTIONAL)

Wavelength	980 nm
CW Power	50 W
Emission Modes	CW and PW
Exposure Modes	Continuous, single impulse, burst or repeated burst
Emission Time (Ton)	5–2000 ms
Burst Impulses in PW	2–50
Transmission System	200 µm, 300 µm, 600 µm fiber, single-use or up to 10× reusable

EASYSLOT HYBRID MICROMANIPULATOR

Optics Technology	Holographic lenses and mirrors (Hybrid)
Spot Dimension	Min 140 µm. Max 4.5 mm
Work Field @ 400mm EFL	Min 20×18 mm. Max 55×40 mm
Joystick Functions	Scanning shape rotation, dimension adjustment, Scan-ON/OFF, laser beam centering

ISO 9001 certified

ISO 13485 certified

Directive 93/42/EEC

Class 4 laser appliance

Manufacture. DEKA M.E.L.A. s.r.l., Via Baldanzese 17, 50041 Calenzano (FI), Italy. DEKA manufactures laser devices in compliance with Directive 93/42/EEC and the ISO 9001 and ISO 13485 standards. Reserved to health professionals.

Important. This catalogue is provided for informational purposes to healthcare professionals and reproduces the manufacturer's published specifications, which are subject to change without notice. Configuration, optional modules and regulatory availability vary by market; confirm the current configuration with Pure Novamed before placing an order. Product appearance may differ from the images shown. SmartXide, PSD, EasySpot, HiScan and MicroScan are marks of DEKA M.E.L.A. s.r.l. Pure Novamed is the exclusive United States distributor of the SmartXide² TRIO for otolaryngology.

DISTRIBUTED BY

Pure Novamed

An ENT-focused medical technology company advancing visualization and surgical laser platforms for otolaryngology practices across the United States.

Long Beach, California, USA

424-383-4087

info@purenovamed.com

www.purenovamed.com