

# SmartXIDE<sup>2</sup> TRIO

**The Only ENT  
Laser Platform  
Three in One**



**DEKA**  
Innate Ability

# SmartXIDE<sup>2</sup> TRIO

## Unique, TRIO

The and accuracy of scanner assisted CO<sub>2</sub>  
laser and the flexibility of CO<sub>2</sub> and diode lasers

**DEKA**  
Innate Ability





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CO<sub>2</sub> Laser

**Articulated Arm**



CO<sub>2</sub> Laser

**Hollow Fibre**



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Diode Laser Module

**Fibre**

# SmartXIDE<sup>2</sup> TR|



## CO<sub>2</sub> Laser Hollow Fibre

To get to the most difficult to reach areas



## Diode Laser

An additional wavelength to expand the range of available procedures





## CO<sub>2</sub> Laser Articulated Arm

### RF excited CO<sub>2</sub> Laser source and PSD® technology

Trio RF excited CO<sub>2</sub> Laser source offer high power and speed of action. The newest PSD® (Pulse Shape Design) technology, utilizing both of these features, is able to generate variable peak pulses with different structure, duration and power to adapt to the various clinical conditions. This makes Smartxide Trio CO<sub>2</sub> laser systems to be extremely versatile for the various surgical applications, especially for ENT surgery. U-PULSE ("Ultrapulsed" - Fig. B) and "Real CW" pulses are the most commonly used in this kind of surgery.

U-Pulse is the perfect pulse for ENT microsurgery because a massive energy is supplied in microseconds, ensuring a perfect ablation, without tissue carbonisation.

"Real CW" emission modality has no acoustic effect and it is suitable for "ONE SHOT" stapledotomy technique.

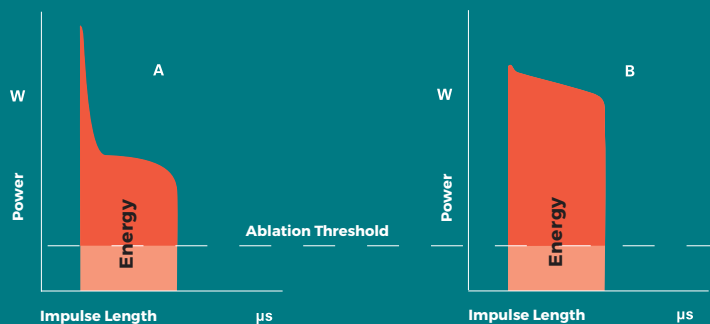


Fig. A: Single-impulse continuous-supply excited laser CO<sub>2</sub> (Superpulsated emission).

Fig. B: Single-impulse radiofrequency excited laser CO<sub>2</sub> (Ultrapulsated emission).

Radiofrequency excited CO<sub>2</sub> laser source produces greater energy above the ablation threshold (red colour) compared to continuous-supply excited CO<sub>2</sub> laser and at comparable pulse length.

connectable with:

- Electronic scanning systems, for extremely precise, safe and reproducible treatments
- High Precision micromanipulators
- Dedicated handpieces with various focal lengths and integrated smoke suction channel





# EasySpot Hybrid + HiScan Surgical

## Take it Easy

### DEKA Scan-Assisted ENT Laser Microsurgery:

- **Minimal thermal damage** to perilesional tissues (less than 50 microns).
- **No carbonisation**, cleanliness of cutting edges.
- **Control on cutting length** ablation **area**, treatment **depth and coagulation %**.
- 2 working modalities: “**Depth**” and “**Power**”.
- Software-guided **procedure** either for **focalisation and** laser beam **centration**.

**SAFETY**  
**REPRODUCIBILITY**  
**EASY TO USE**



## Easy Control

Operate without ever moving your eyes from the microscope.

**4 functions controlled by the exclusive microswitch joystick:**

- Scanning shape **rotation** (step-by-step and fast).
- Ablation figures **dimension adjustment**.
- **Scan-ON/Scan-OFF**.
- Laser beam **Centering adjustment**.

## Easy Field

- **Mechanical regulation of the working area** to precisely confine the laser beam within the operating field. Easy and safe.

## Easy Focus

- **Hybrid technology** focusing system (holographic lens and high-reflectance mirrors).
- **Single-ring focus/defocus** system with focal point memory.
- High depth focus with **exact correspondence between the guide light and the CO<sub>2</sub> laser**.





## Easy Plug

- Fast connections and internal wiring.

## Hi Scan Surgical

- **Ultra fast** laser beam **movement** (100 millionths of a second), minimum dwell time.
- High-precision **scanning shapes**, with **size of up to 6.3 mm** for tissue cutting and ablation.

### The Greatest Range of Scanning Shapes for Surgery:

- Line
- Circle archs up to complete circle
- Filled circle
- Filled hexagon
- Double interpolated ellipse
- Spirals for **ONE SHOT** stapedotomy



# Endoscan

Miniaturised scanning system used with handpieces for free-hand surgery, such as oropharyngeal surgery.

The multi-function key enables precision centering and the possibility to either activate or de-activate the scanner (Scan-ON/Scan-OFF function).



# Handpieces

Smartxide<sup>2</sup> TRIO offers a broad range of handpieces endorsing different focus lenses, spacers and mirrors for perfect operation.

A dedicated Airinlet allows for Air to keep lenses safe from dust and debris particle accumulation, while the integrated smoke junction channel allows smoke to be caught by the tip of the handpiece 1.5", 2", 4", 5", 7", 8" EFL and collimated focus. 4", 5", 7" and 8" can be used with dedicated scanning system (EndoScan).

A special 2" ("SLIM CUT") handpiece, indicated for free-hand precision cutting, is also available.



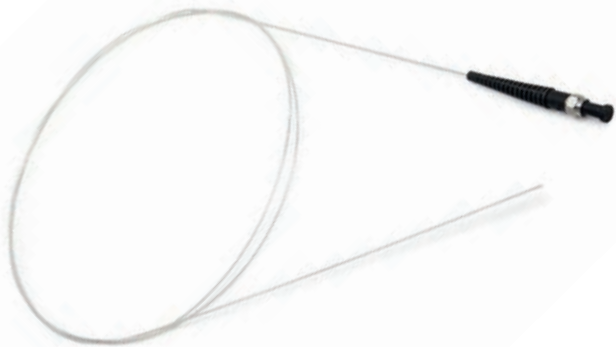
"SLIM CUT" cutting handpiece



## Flexible Delivery

Smartixde<sup>2</sup> TRIO offers the possibility to work in normally difficult to reach areas thanks to its “flexible delivery devices” for both the CO<sub>2</sub> and diode lasers.

The hollow fibre CO<sub>2</sub> laser cutting precision and the greater coagulative properties of diode laser are available today in a single platform to meet all ENT surgical needs.



## CO<sub>2</sub> Hollow Fibre

CO<sub>2</sub> hollow fibre can be used with handpieces owning various shapes, lengths, with either spatula and or flat tips. According to the surgeon's preferences/needs.



# Diode Laser

**The diode laser optics-guided transmission system allows the surgeon to operate easily even in the hardest conditions**

The easy use of diode laser is well known in ENT.

Moreover the flexibility of fibre optics allows users to easily reach areas such as the middle ear ("**ONE SHOT**" stapedotomy) and the nose (turbinates).

The Smartxide<sup>2</sup> TRIO diode laser system can also be integrated anytime, with successive upgrades of the system.

A broad selection of fibre optics from 200  $\mu\text{m}$  to 600  $\mu\text{m}$ , single-use or up to 10 times reusable to reduce costs, is available.



200  $\mu\text{m}$



300  $\mu\text{m}$



400  $\mu\text{m}$



500  $\mu\text{m}$



600  $\mu\text{m}$

# “ONE SHOT” Stapedotomy technique with diode laser fibre

Up to a few years ago, stapedotomy with “ONE SHOT” technique was performed with precision micromanipulators and scanning systems.

Today the same mini-invasive technique can be performed with high-power fibre diode laser.

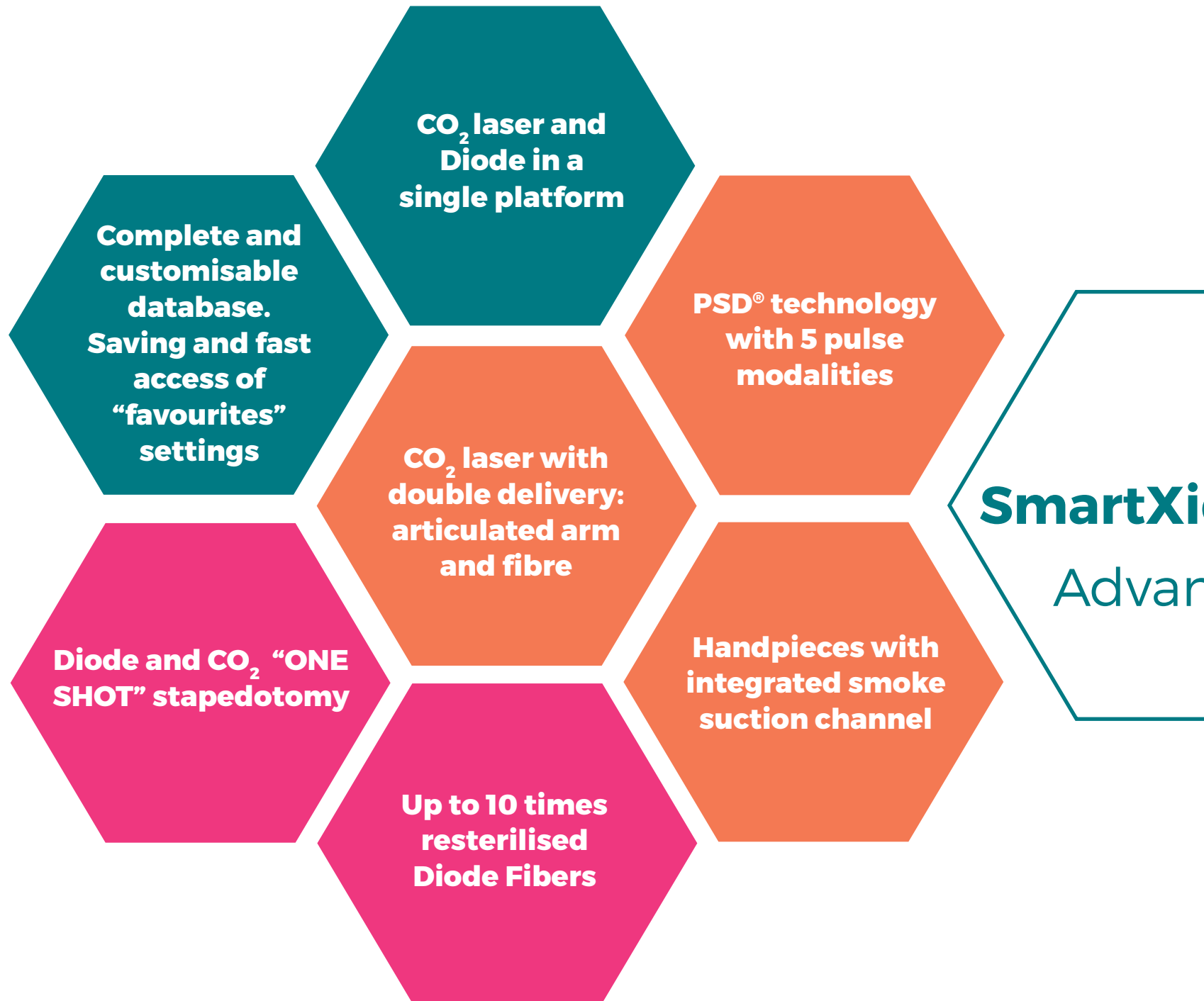
Dedicated retrievable database protocols set the laser energy necessary to make the plate hole with a single impulse, ensuring operative simplicity, safety and precision.



## Bibliographic References:

1- A.M. Poletti et. al. The “One Shot” Diode Laser Stapedotomy: Photomedicine and Laser Surgery Volume X, Number X, 2015

2- S. Dallari: Video Atlas of Middle Ear Surgery Minerva medica ed. 2018





# SmartXIDE<sup>2</sup> TRIO Advantages

**Maximum working  
field adjustment**

**Hybrid technology  
with perfect  
correspondence  
between laser  
Aiming beam  
and CO<sub>2</sub> laser**

**Exclusive guided  
procedure for focusing  
and centering**

**The broadest range  
of scanning shapes  
for surgery**

**4 joystick-  
controlled  
scan functions**

**Focalisation with  
focal point memory**

**“DEPTH” and “POWER”  
operative modes**

## ***The technological solution for all ENT treatments - CLINICAL CASES***



Left vocal cord polyp



3 months Follow-up



Squamous cell carcinoma (T3)



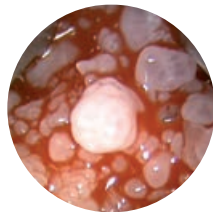
6 months Follow-up



Squamous cell carcinoma (T1a)



12 months Follow-up



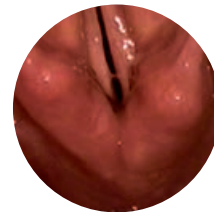
Recurrent respiratory papillomatosis



After removal of the papilloma (obvious glottic stenosis)



11 months Follow-up (after 4 procedures)



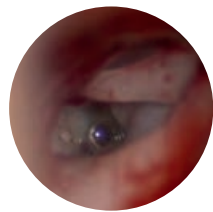
Bilateral paralysis of the vocal cords (after total thyroidectomy)



Posterior cordotomy



6 months Follow-up



"ONE SHOT" stapedotomy with diode laser

*Courtesy of Dr. Arturo Mario Poletti  
Consultant - Department of ENT Surgery,  
American Hospital Dubai (UAE)*



"ONE SHOT" stapedotomy with CO<sub>2</sub> laser

*Courtesy of Dr. Stefano Dallari  
Director of the Department of ENT Surgery,  
Ospedale di Fermo (Hospital of Fermo, Italy)*

# The Experience of Professionals

“

I've been using diode laser for stapedotomies since the end of the 1990s. It's very easy to use, safe and makes the surgical procedure faster. I started with 940 nm and switched to 980 nm, which I prefer. The main characteristic of 980 nm is that it's partially absorbed by water, therefore the perilymph, although not its main target, acts as a backstop and therefore does not produce any heating of the inner ear. The main characteristic of the "One Shot" stapedotomy is the supply of highly concentrated energy on the bone in a brief exposure time, thus preventing temperature increase of surrounding tissues.

Since 2007, with this technique, I have performed hundreds of procedures and most patients have a long follow-up with good results. The "One Shot" diode laser technique significantly simplifies the surgical procedure, especially when compared to traditional techniques such as the use of manual perforation and microdrill which are not selective and precise on the delicate structures of the inner ear.

”

**Dr. Arturo Mario Poletti**

Consultant - Department of ENT Surgery,  
American Hospital Dubai (UAE)

“

The DEKA CO<sub>2</sub> laser, with progressive scanning technology, makes surgery on delicate tissues, like vocal cords, easier and safer. This is a wonderful tool for selective reconstruction procedures of the airways, with a series of significant advantages that go from ablation depth control, to reduced thermal damage, to lower dependence on the imprecise movements of the surgeon's hand.

”

**Dr. Guillermo Campos**

Director - Institute of Laryngology  
Consultant - Department of Surgery,  
Fundación Santa Fé University Hospital,  
Bogotá DC, Colombia

“

Thanks to the precision and replicability that only scan-assisted CO<sub>2</sub> laser microsurgery can offer, the new HiScan Surgical scan system, along with the Easyspot Hybrid micromanipulator, has significantly simplified the performance of delicate and complex surgical procedures such as transoral larynx surgery and laser stapedotomy.

”

**Dr. Stefano Dallari**

Director of the ENT Surgery Unit  
Ospedale di Fermo, Italy



## Suggested ENT configurations

Type of laser	CO <sub>2</sub> RF - PSD*
Wavelength	10.6 µm
Laser emission mode	TEM00
Emission modes	CW - SP - DP - HP - UP
CW power	From 0.5 to 60 W
SP power	From 0.1 to 15 W
DP power	From 0.2 to 15 W
HP power	From 0.1 to 8 W
UP power	From 0.5 to 60 W
Exposure time	From 0.01 to 0.9 seconds
Delay time	From 0.3 to 5 seconds
Transmission system	7-mirror articulated arm with counterweight or flexible hollow fibre
Guide light	- Diode @ 635 nm - 4 mW - Intensity can be regulated, from 1% to 100% - Diode - function OFF during emission (DOWL).
User database	About 150 pre-set, protocols, updatable with USB / unlimited saving of user parameters / possibility of saving customisable protocols.
Control panel	10.4" LCD colour touchscreen
Accessories*	Flexible hollow fibre for CO <sub>2</sub> laser Diode laser @ 980 nm - 30 or 50 W. HiScan Surgical scan system. EasySpot Hybrid micromanipulator. Endoscan scanning system. Broad range of surgical handpieces.
Power supply	From 100 to 120 Vac - 50/60 Hz From 220 to 230 Vac - 50 Hz / 1600 VA
Size and weight	cm 167 (A) x 59 (L) x 56 (P) - 100 Kg (with closed articulated arm)
* Optional.	

## CO<sub>2</sub> hollow fibre

Length	200 cm
Diameter	500 µm (internal) - 1 mm (external)
Power	40 W (Max)
Emission modes	CW - SP - DP - HP - UP
Accessories	Handpieces of various shapes and lengths, hard and soft
Insufflation air	Can be used with filtered internal system air and with hospital air.

## Integrated diode laser

Wavelength	980 nm
CW power	30 W      50 W
Emission modes	CW and PW
Exposure modes	Continuous, single impulse, burst or repeated burst
Emission time in PW (Ton)	From 5 to 2000 ms
Emission delay time in PW (Toff)	From 5 to 2000 ms

Burst impulses in PW	From 2 to 50
Delay between bursts	From 0.5 to 5 seconds
Transmission system	200 µm, 300 µm, 400 µm, 500 µm and 600 µm fibre optics, single-use or resterilisable up to 10 times, with chips. SMA 905 connector.

## Integrated diode laser

Maximum size	5 mm @ 300 mm EFL, 6.3 mm @ 400 mm
Dwell time	From 100 to 1000 µs
Scanning system	Cutting (tip), circle, ball
mission modes	CW - UP

## HiScan Surgical scanning system

Max scanning area	6.3 mm x 6.3 mm @ 400 mm EFL
Dwell time	From 100 µs to 45 ms
Scan depth	From 0.2 to 2 mm
Scan modalities	Power Mode and Depth Mode
Scanning shapes	Lines, circle arches up to a complete circle, spiral, ball, hexagon (progressive and interlaced scan).
Emission modes	CW - UP

## EasySpot Hybrid\*\* Micromanipulator

Optics technology	Holographic lenses and mirrors (Hybrid)
Spot dimension	Min 140 µm - Max 4.5 mm
Work field @ 400 mm EFL	Min 20x18 mm - Max 55x40 mm
Joystick-regulated functions	Rotation and size of scanning shapes, Scan, On/Scan Off, fine centration.

\*\*Can be used with all surgical microscopes.

**ATTENTION** - Visible and invisible laser radiation. Avoid exposing eyes and skin to direct or diffuse radiation. Class 4 laser appliance



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### DEKA Innate Ability

DEKA, a spin-off of the El.En. Group, is a leader in the design and production of light laser systems for medical applications. DEKA markets its appliances in over 80 countries through a network of distributors in international markets and with direct branches in France, Japan and the USA. DEKA produces laser devices in compliance with Directive 93/42/CEE specifications and in compliance with the ISO 9001 and ISO 13485 quality system.

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