



## SURGERY - GYNAECOLOGY

### SMARTXIDE<sup>2</sup>

**Unparalleled Power and Versatility:  
The Accuracy of the CO<sub>2</sub> Laser and the  
Flexibility of the Diode Laser**

**DEKA Electronic Scanning Systems:  
Technology at the Service of Surgery**

**DEKA Technologies:  
Experts from the Start**

**Colposcopy  
Gynaecological Laparoscopy**



The Code of Excellence

## SMARTXIDE<sup>2</sup>

### THE SMARTXIDE<sup>2</sup> REVOLUTION: ABSOLUTE PRECISION AND CONTROL FOR THE MOST ADVANCED GYNAECOLOGICAL SURGERY

The use of CO<sub>2</sub> laser has considerably improved the performance of gynaecological surgery with totally mini-invasive operations. Today CO<sub>2</sub> laser is universally recognised as the gold standard in numerous gynaecological applications.

DEKA, world leader in the development of high tech laser systems, concentrated over thirty years of expertise into the technological excellence of SmartXide<sup>2</sup>.

The synergistic interaction of SmartXide<sup>2</sup>:

- CO<sub>2</sub> RF laser source with **PSD**<sup>®</sup> (Pulse Shape Design) technology,
- high precision scanning systems (**HiScan Surgical** and **EndoScan**),
- micromanipulator with exclusive **Hybrid** technology

provides unparalleled performance of gynaecological applications. In line with the ongoing commitment to innovation, DEKA paved the way for a new multidisciplinary, avant-garde laser system. SmartXide<sup>2</sup> can operate in both the colposcopic and endoscopic fields, with a versatility that makes it the most advanced worldwide CO<sub>2</sub> laser system.

*"SmartXide<sup>2</sup> CO<sub>2</sub> laser coupled with the microspot micromanipulator and scanner, combines speed, user-friendliness and mini-invasiveness in a single system. By controlling the ablation depth and thermal damage it is possible to enhance the safety and effectiveness of the treatments in full respect of patients. CO<sub>2</sub> laser systems with scanner-assisted technology have become the gold standard in out-patient surgery of the lower genital tract."*

**Prof. C. Penna, M.D.**

Department of Gynaecology and Obstetrics  
Colposcopy and Laser Therapy Office  
Careggi University Hospital, Florence - Italy

*"The SmartXide<sup>2</sup> laser system CO<sub>2</sub> wavelength is ideal to precisely treat soft tissue. Not needing any direct contact, the SmartXide<sup>2</sup> laser allows for treating areas otherwise difficult to reach with other methods employed in video laparoscopy. DEKA advanced systems utilize a high energy pulse that coupled with the precision of the scanner movement, allow for safe and minimally invasive treatments, especially for difficult to treat conditions like Endometriosis and Infertility therapy. This is why the SmartXide<sup>2</sup> laser system is an indispensable tool for the discerning physician."*

**Maurizio Rosati, M.D.**

Director of the Operating Unit of Gynaecology and Obstetrics  
Spirito Santo Hospital, Pescara - Italy

# SURGERY - GYN

## SMARTXIDE<sup>2</sup>

### DEKA TECHNOLOGIES: BEYOND PROGRESS WITH SMARTXIDE<sup>2</sup> IN GYNAECOLOGY

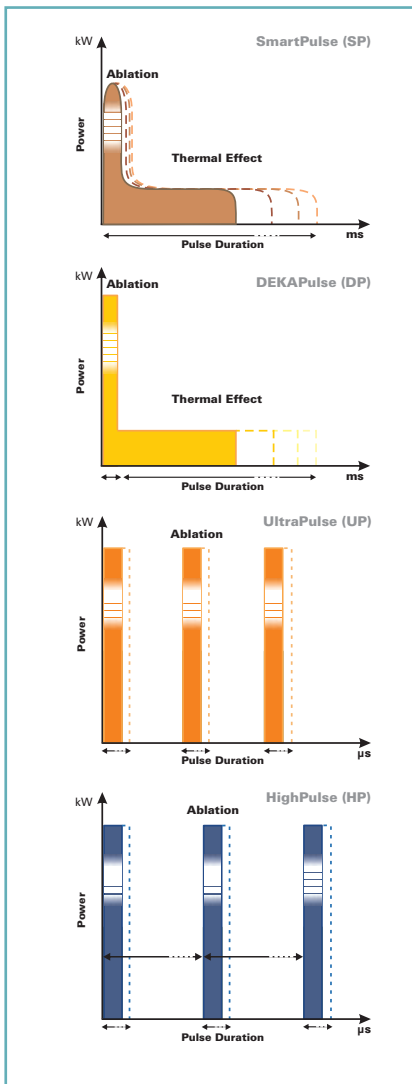
The technological evolution and ongoing scientific research in DEKA laboratories and highly specialised world centres, have pushed the SmartXide<sup>2</sup> design beyond the current boundaries, with a decisive impact on gynaecological laser surgery.

DEKA innovative CO<sub>2</sub> RF laser source with the exclusive **PSD<sup>®</sup>** (*Pulse Shape Design*) technology generates pulses especially designed for surgical applications (U-Pulses), and the use of lasers in total synergy with the **HiScan Surgical** and **EndoScan** scanning systems.

SmartXide<sup>2</sup> is an extremely versatile platform that allows for unique results.



<b>PSD<sup>®</sup> Technology</b>	The first RF CO <sub>2</sub> laser system with the exclusive Pulse Shape Design technology. It enables the maximum flexibility of the pulse shape: S-pulse, D-pulse, H-pulse, U-pulse and the CW mode, greatly expand the surgical capabilities of the SmartXide <sup>2</sup> making it an effective, versatile and powerful system.
<b>2</b>	Scanning systems, EndoScan and Hiscan Surgical for colposcopic and laparoscopic surgery.
<b>EndoScan</b>	Most miniaturised scanning system in the world for laser-assisted gynaecological surgery. Scan On/Off, and centring controlled by microswitch on scanner body and joystick.
<b>HiScan Surgical</b>	Double galvanometer scanner for colposcopic surgery.
<b>6</b>	Scanning figures: lines, curves of a circle (and full circles), spirals, hexagons (with progressive and interlaced scanning), clover.
<b>2</b>	Selectable ablation modes: Depth and Power.
<b>Hybrid Technology</b>	Holographic lens and mirrors for perfect focusing of the laser beams, producing micro spots and the largest scanning figures on the market (max. diameter 6.3 mm).
<b>Database</b>	Integrated protocols designed for gynaecological surgery.
<b>Multimedia features</b>	Integrated photo and video tutorial.



The ability to produce different pulses shapes greatly expand the surgical capabilities of the SmartXide<sup>2</sup> making it an effective, versatile and powerful system.



Top image, the HiScan Surgical scanning system that can be combined with the EasySpot series micromanipulators (next page). Bottom images, ultra-miniaturised EndoScan system coupled with surgical laparoscopes and with EasySpot Hybrid micromanipulator.



## RF CO<sub>2</sub> LASER SOURCE WITH PSD® TECHNOLOGY: VERSATILITY WITHOUT COMPROMISES

The development of RF CO<sub>2</sub> laser source equipped with the exclusive **PSD®** (*Pulse Shape Design*) technology allowed DEKA to create a CO<sub>2</sub> laser system with high emission versatility and capable of generating optimal pulses for multidisciplinary applications designed especially for gynaecological surgery.

SmartXide<sup>2</sup> unique features and power allows for the creation of fractional laser pulses with variable structure, durations and peak powers, something completely new in CO<sub>2</sub> laser technology.

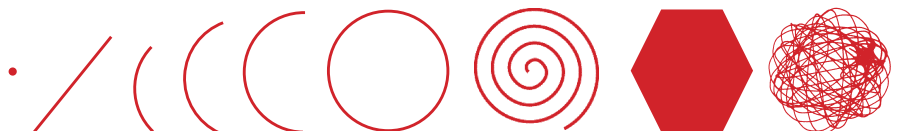
### The Perfect Pulse for Every Application

The perfect pulse for the various gynaecological applications must be adjustable in order to ensure extremely high peak power and short duration needed to minimise thermal damage on tissue and to maximise the haemostatic effect on blood vessels.

## HISCAN SURGICAL AND ENDOSCAN: NEW ADVANCEMENT IN GYNAECOLOGICAL SURGERY

**HiScan Surgical** is a double galvanometer patented by DEKA. It allows the robotic technology use in microsurgery. The laser beam focused by the zoom of the hybrid micromanipulator in spots of few microns is rapidly moved offering:

- optimal scanning figures for cutting and ablation of tissues;



- minimum lateral thermal damage to tissues;
- selection of the ablation depth of each single scan (depth mode);
- reduced learning curve.

**EndoScan** ultra miniaturised scanning system, patented and exclusive to DEKA, can be used coupled whit handpieces as well as laparoscopes and surgical micromanipulators.

The available scanning figures are:



## EASYSPT HYBRID MICROMANIPULATOR: THE NEW GOLD STANDARD IN SURGERY

**EasySpot Hybrid** offers exclusive technical advantages in microscopic surgery granting full control in areas requiring extreme precision and utmost accuracy.

Combining holographic lens and high reflectivity mirrors hybrid technology produces micro spots and the largest scanning figures in the market. The main scanning functions are microswitch-controlled by the joystick allowing the surgeon to operate without ever taking his eyes off the microscope.



HISCAN Surgical scanning system coupled with EasySpot Hybrid micromanipulator.

*These technological innovations make the HiScan Surgical and Easyspot Hybrid the most ergonomic and versatile devices on the market today:*

### **EasyField system:**

*Full control of the beam even inside a limited operating field, through gradual mechanical adjustment of the maximum working field.*

### **EasyFocus system:**

*A single ring-nut with a mechanical lock of the focal point that enables swift and intuitive focusing and defocusing operations.*

### **EasyPlug system:**

*Simple connections and internal wiring optimise the design and the ergonomics of the equipment.*



Thanks to the remote control located on the joystick, all the main functions are under the surgeon's direct control without ever taking his eyes off the microscope.

### **Remote Control**

The microswitch located on top of the joystick allows physicians to easily control all the main scanning functions without taking their eyes off the operating microscope.

The joystick makes it possible to:

- control the rotation and size of the ablation figures;
- select the Scan On/Off mode immediately;
- set the beam centering in the accessories with the utmost precision.



Software Deka: user-friendly right from the start.

## DEKA SOFTWARE: SIMPLICITY AND KNOW-HOW SERVING THE PHYSICIAN

SmartXide<sup>2</sup> new graphic interface is designed to simplify and facilitate control of all functions available. The large *LCD Touch Screen* ensures easy selection of the operating parameters.

The integrated database allows for rapid selection of the most suitable settings for carrying out surgery, considerably reducing the time usually needed to learn how to use such a complex system with so many functions. The multimedia content with photos and videos provides quick and targeted training for the specialists and their staff.



The flexibility and user friendliness of the diode laser, coupled with the speed and precision of the CO<sub>2</sub> laser, make the SmartXide<sup>2</sup> an extremely versatile system.

## SMARTXIDE<sup>2</sup> SYSTEM: UNIQUE, VERSATILE, MULTIDISCIPLINARY

Versatility, high performance and efficacy in the pursuit of excellence: with its multidiscipline and poly-functional properties, the SmartXide<sup>2</sup> system represents a real innovation for the range of CO<sub>2</sub> and diode lasers. In fact, SmartXide<sup>2</sup> comes with a complete series of accessories that can be adapted for use in surgery (ENT and Gynaecology), dermatology, aesthetic medicine, V<sup>2</sup>LR (*Vulvo-Vaginal Laser Reshaping*) and dentistry.

Each system comes with a complete database and specific handpieces as well as optional accessories designed to enhance and intensify the four specialties depending on the physician's requirements.

Physicians can select the most suitable configuration for their specific needs, indicating source type and power when placing their order. The accessories can also be upgraded to extend the applications later on.

SmartXide<sup>2</sup> can also be upgraded with an additional diode laser module.

Diode lasers are well known and widely used in the surgical sector since they are user-friendly and ensure the benefits that only a versatile fibre optic transmission system can offer, especially in difficult-to-treat areas.

Diode laser is available with 2 wavelengths (940 nm or 980 nm) and 2 maximum powers (30 W and 50 W). A wide range of optical fibres from 200 to 600 microns, single use or 10-time sterilisable can be chosen.

## TECHNOLOGICAL INNOVATION IN GYNAECOLOGY

Smartxide<sup>2</sup> coupled with its dedicated accessories makes it possible to safely and effectively treat the majority of pathologies of the lower female genital tract. This surgery is minimally invasive and offers significant advantages over other techniques.

The SmartXide<sup>2</sup> versatility enables physicians to utilize both the excision and ablative scanning methods. The minimal tissue thermal damage and the reduced use of anaesthesia and vasoconstrictors result in enormous benefits for the surgeon, and in a fast, safe post-op recovery for the patient.

### Applications in Colposcopic Surgery:

• Cervical, vaginal, vulvar, and anal acuminata condylomas • Cysts and abscesses of Bartholin's glands • Cysts of the mucosa • Various degrees of CIN up to invasive carcinomas or at the initial stages (IA1) • Pathologies of the fornix and cupola: VAIN, endometriosis, vaginal endometriosis, condylomatosis • VIN • Bowen's disease, Queyrat's erythroplasia, Bowenoid papulosis • Leukoplachia (vulvar dystrophy) • Polyps • Perivulvar and perianal fistulas • Endoanal pre-cancerosis.

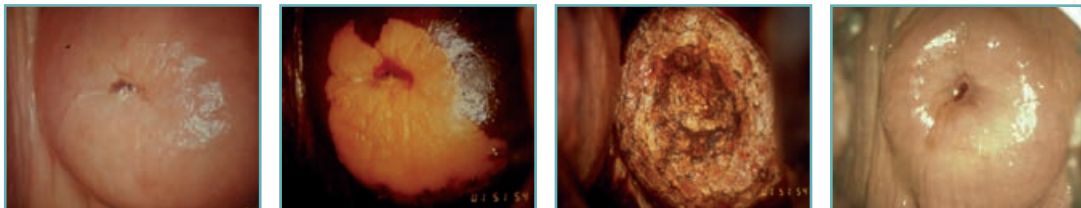
### Applications in Laparoscopic Surgery:

Vaporization, incision, excision, photocoagulation of the soft tissues for treatment of:

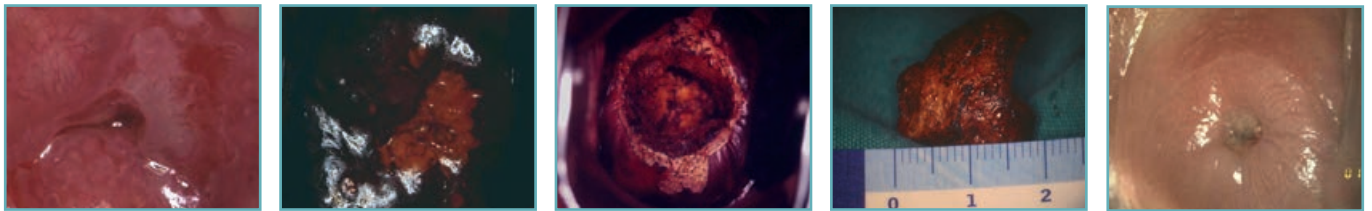
• Endometriosis • Adhesions • Myomas and uterine broids • Ovarian broids.

The following operations:

• Salpingostomy • Fimbrioplasty • Fallopian tube microsurgery • Oophorectomy, ovariectomy • Ovarian drilling (for ovarian polycystosis) • Metroplasty • Ablation of uterosacral ligaments • Hysterectomy • Sacrocolpopexy, sacrocervicopexy, sacrouteropexy (for genital prolapse).



(#) Vaporization for LSIL



(#) Conization for HSIL



(\*) Treatment of Endometriosis

(#) Courtesy of:

**Prof. Carlo Penna, M.D. - Maria Grazia Fallani, M.D.**  
Department of Gynaecology and Obstetrics Colposcopy and  
Laser Therapy Office - Careggi University Hospital, Florence - Italy.

(\*) Courtesy of:

**Maurizio Rosati, M.D.**  
Director of the Operating Unit of Gynaecology and Obstetrics  
Spirito Santo Hospital, Pescara - Italy.

## TECHNICAL DATA

### SMARTXIDE<sup>2</sup> - Suggested Configuration in Gynaecology

Models*	C60 and C60H	C80 and C80H
Laser Type	CO <sub>2</sub> RF - PSD®	
Wavelength	10.6 µm	
Emission Beam	TEM <sub>00</sub>	
Emission Modes	CW - SP - DP - HP -UP	
CW Power	From 0.5 to 60 W	From 0.5 to 70 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	From 0.1 to 15 W
UP Power	From 0.5 to 60 W	From 0.5 to 80 W
Emission Time	From 0.01 to 0.9 s	
Delay Emission Time	From 0.3 to 5 s	
Beam Delivery	7 Mirrors articulated arm with counterweight.	
Aiming Beam	Laser diode @ 635 nm - 4 mW - Adjustable intensity from 2% to 100% - Aiming light OFF or Diode OFF while lasing (DOWL). About 150 factory stored protocols, upgradable by USB.	
Internal Database	Possibility of storing unlimited number of custom user's protocols.	
Control Panel	Wide LCD Colour Touch Screen (10.4").	
Accessories*	HiScan Surgical Scanner System. EndoScan Scanner System. Hybrid EasySpot Micromanipulator. Laser diode @ 940 or 980 nm - 30 or 50 W. Wide range of surgical handpieces.	
Electrical Requirements	From 100 to 120 Vac - 50/60 Hz From 220 to 230 Vac - 50 Hz - 1,600VA	
Dimensions** and Weight	162 (H) x 59 (W) x 56 (D) cm. - 95 kg for C60 and C80 192 (H) x 59 (W) x 56 (D) cm. - 100 kg for C60H and C80H	

### Integrated Laser Diode (optional)

Wavelength	940 or 980 nm	
CW Power	From 0.5 to 30 W	From 0.5 to 50 W
Operating Modes	CW and PW	
Exposure Modes	Continuous, single pulse, burst or repeated burst.	
Emission time in PW (Ton)	From 5 to 2,000 ms	
Delay Emission Time in PW (Toff)	From 5 to 2,000 ms	
Burst pulses in PW	From 2 to 50	
Delay between bursts	From 0.5 to 5 s	
Beam Delivery	Optical Fibers of 200 µm, 300 µm, 400 µm, 500 µm and 600 µm, single use or 10 times sterilisable, with chip; SMA 905 connector.	

\* In this catalogue only the technical features of the Gynaecology applications are listed. Please refer to the SmartXide<sup>2</sup> General for the complete list of characteristics.  
\*\* Height with folded articulated arm.

### CAUTION

Visible and invisible laser radiation.  
Avoid eye or skin exposure to direct or scattered radiation.  
Class 4 laser product.

This brochure is not intended for the market of USA.

### HiScan Surgical Scanner System

Max Scanning Area	6.3 mm x 6.3 mm @ 400 mm EFL
Dwell Time	From 100 µs to 45 ms
Selectable Ablation Depth	From 0.2 to 2 mm
Scanning Modes	Power Mode and Depth Mode.
Scanning Shapes	Point, line, arcs of circle up to complete circle, Spiral, Clover, Hexagon (progressive and interlaced scanning).
Emission Modes	CW - UP

### EndoScan Scanner System

Max Scanning Size	5 mm @ 300 mm EFL, 6.3 mm @ 400 mm
Dwell Time	From 100 to 1,000 µs
Scanning Shapes	Cut Mode (Point), Circle, Clover.
Emission Modes	CW - UP

### Hybrid EasySpot Micromanipulator

Optical Technology	Hybrid - Holographic lens and mirrors.
Spot Size	Min 140 µm - Max 4.5 mm
Operative Field @ 400mm. EFL	Min. 20x18 mm - Max 55x40 mm
Joystick Controls	Rotation and ablation shape dimensions, Scan-ON/Scan-OFF, Centering fine tuning.
Adaptable to the most common surgical colposcopes.	



### COLPOSCOPY - LAPAROSCOPY - FREE HAND SURGERY

CE  
0123

Dealer stamp

SmartXIDE<sup>2</sup>

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The Code of Excellence



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**DEKA The Code of Excellence**  
A spin-off of the EL.En. Group, DEKA is a world-class leader in the design and manufacture of lasers and light sources for applications in the medical field. DEKA markets its devices in more than 80 countries throughout an extensive network of international distributors as well as direct offices in Italy, France, Germany, Japan and USA. Excellence is the hallmark of DEKA's experience and recognition garnered in the sphere of R&D in over thirty years of activity. Quality, innovation and technological excellence place DEKA and its products in a unique and distinguished position in the global arena. DEKA manufactures laser devices in compliance with the specifications of Directive 93/42/EEC and its quality assurance system is in accordance with the ISO 9001 and ISO 13485 standards.