Quanta System Q1 LASER IN OUR DNA

Taking care of people, our masterpieces

Discovery PICO Series

The New Era of Tattoo and Pigmented Lesion Treatments

This brochure is not intended for the U.S. market.
Certain Intended Uses/Configurations/Models/Accessories are not cleared for U.S.

Aesthetics

DISCOVERY *PICO*

THE NEW ERA OF TATTOO AND PIGMENTED LESION TREATMENTS

Discovery PICO represents the second generation of picosecond lasers that due to its proprietary technology, is the most innovative medical laser available in the market today.

It has an Nd:YAG double-wavelength laser source emitting at both 1064 nm and 532 nm, provided by the exclusive Quanta Pico-Boost Technology (patent pending). This feature makes possible to work in a Picosecond mode delivering up to 800 mJ of energy and up to 1.8 GW of power and also in Q-Switch and Photo-Thermal modes, thus making Discovery PICO the most powerful laser in its class.

The innovation introduced by Discovery PICO consists in peak power level through ultrashort pulses that is twice more powerful than any other Picosecond laser for medical applications. This has enhanced the treatment results increasing the efficacy on hard-to-treat tattoo inks with a general reduction in the average delivered energy dose.

Discovery Pico Plus

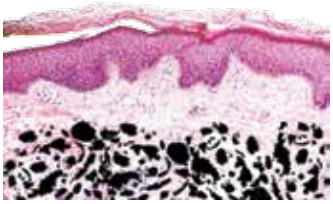
This version is the first picosecond yag laser with the same specifications of Discovery Pico combined with a ruby laser able to delivers up to 1.2J of energy and not just few hundred mJ such as other "red" lasers. The 694 nm of Discovery Pico Plus are generated by the most advanced and powerful ruby laser available in the market: very high energy per pulse in Q-Switched or Photo Thermal pulses, big spot sizes and fast repetition rates make this laser, together with the 532 and 1064 nm which work also in picosecond regime, a real solution for the treatment of almost all tattoo colors and pigmented lesion even on very dark skins and represent the best combination for unmatched treatment efficacy and safety.

The **Discovery PICO series** is an innovative laser with a contemporary Italian design that opened a new era.
It has been developed by Quanta System with a "historical" solid reputation for ultrashort-pulsed lasers and it is dedicated to all professionals that want to be a point of reference in the aesthetic field, through the most advanced laser technology which offers excellent results to patients.

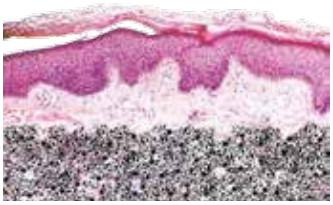
PHOTOACOUSTIC EFFECT

When the laser radiation is emitted at nanoseconds and picoseconds pulses and the power density is in the range of the GW and the laser light is absorbed by clusters or particles of ink or melanosomes, it generates an extremely rapid rise of temperature up to more than 900° C[1]. This rapid heating induces an extremely fast expansion in the target, which generates a mechanical wave (acoustic) that crosses over the target itself. The generated wave exerts a pressure that exceeds the fracture threshold of the target, causing its fragmentation[2]. Thereafter, the fragments can undergo phagocytosis by macrophages and be removed through the lymphatic system. This is the process called photoacoustic effect which is literally able to "pulverize" particles. To make this happen at the best conditions, the laser pulse duration must shorter than the time of crossing over of the mechanical wave within the target, which for ink clusters is in nanoseconds and for the smallest ink particles and single melanosomes is in the picosecond range, all this leaving the surrounding tissues unaffected.

BEFORE

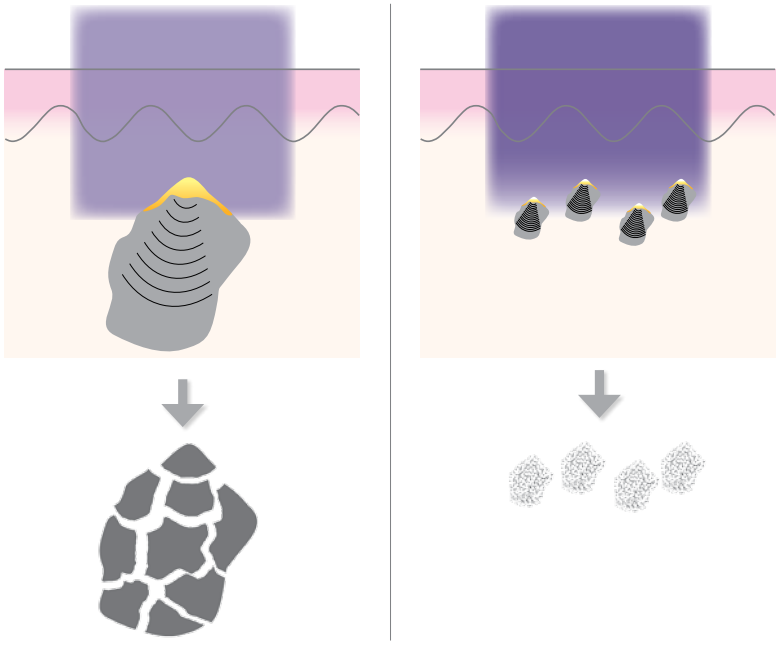


AFTER PICO



The picosecond YAG laser can break down the smallest ink particles which compose the black tattoos. This color, due also to the very small dimensions of its particles, sometimes become resistant to Q-Switched treatments showing small improvements at every session. The picosecond pulse can fragments even the smallest black ink particle in a really thin "dust", which is easier to be eliminated by the body immune system. By emitting at both 532 nm and 1064 nm wavelengths at picosecond regime, Discovery PICO can treat different tattoo colors, superficial and deep pigmented lesions by using also the Q-Switched emission modes. As an exclusive feature of this laser, the Photo-Thermal mode permits to treat also the aged skin (skin rejuvenation) effectively.

Ink cluster fragmentation with **Q-Switch** laser



Ink particle pulverization with **PICO** laser

[1] Basics in Dermatological Laser Applications, Inja Bogdan Allemann, D. J. Goldberg – 2011

[2] (Comparison of Response of Tattoos to Picosecond and Nanosecond Q-Switched Neodymium:YAG Laser - E. Victor Ross, USN; George Naseef, MD; Charles Lin, PhD; Michael Kelly, MS; Norm Michaud, MS; Thomas J. Flotte, MD; Jill Raythen;R. Rox Anderson, MD, Arch Dermatol. 1998;134(2)

NO MORE COLOR LIMITS

The Q-Switched Ruby of the Plus version of Discovery PICO effectively extends the range of treatable colors.
This is the most effective laser for the treatment of blue and green colors due to the very high pulse energy able to really break down the ink clusters.
The particles of colors treated by this laser are in average bigger that the ones composing the black ink and are really well responding to ns pulses too.

MAIN FEATURES

Highest Peak Power up to 1,8 GW

Ultrashort Pico Pulses 450 ps and 370 ps

High Energy 800 mJ @ 1064 nm

Dual Wavelength Picosecond Laser
1064 nm and 532 nm

Q-Switched Ruby Laser @ 694 nm (Plus version)

Picosecond, Q-Switch, OptiPulse and Photo-Thermal modes all in one device

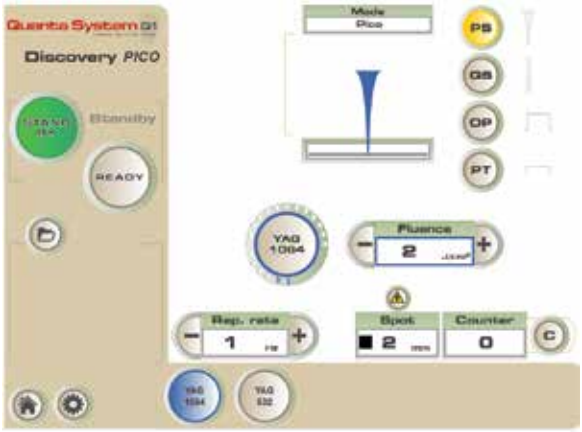
Optibeam II Handpieces
Flat Top squared, round and fractional spots

Twain connector for expansions

Switch on time in less than 2 minutes

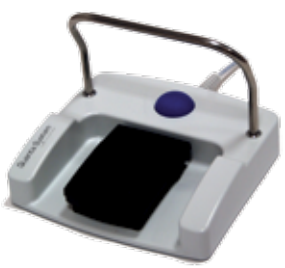
Low power absorption, just 16A at 230 Vac

Touch screen display 10.4" Gorilla Glass®



Intuitive interactive graphical user interface with easy access to all main functions. Change of wavelength and pulse mode by a single button.
Settings database for Saving / Loading of the User parameters.

New footswitch



Blue Button
Ready/Standby function

Black Button
Laser emission activator

RESULTS
BEFORE / AFTER

TATTOO REMOVAL - **4 TREATMENTS**
Courtesy Nicola Zerbinati MD

TATTOO REMOVAL - **4 TREATMENTS**
Courtesy Nicola Zerbinati MD

TATTOO REMOVAL - **5 TREATMENTS**
Courtesy Nicola Zerbinati MD

TATTOO REMOVAL - **4 TREATMENTS**
Courtesy Nicola Zerbinati MD

BENIGN PIGMENTED LESIONS
Courtesy Kinugasa MD

BENIGN PIGMENTED LESIONS
Courtesy Nicola Zerbinati MD

TECHNICAL SPECIFICATIONS

	Discovery PICO PLUS		
	Discovery PICO		
Laser Wavelength	Nd:YAG 1064 nm	FD Nd:YAG 532 nm	Ruby 694 nm
PICO - Pulse duration Max energy	PICO - 450 ps 800 mJ	PICO - 370 ps 300 mJ	-
Q-SWITCHED - Pulse duration Max energy	QS - 6 ns 800 mJ	QS - 6 ns 400 mJ	QS - 30 ns 1200 mJ
OPTI-PULSE - Pulse duration Max energy	OP - 6 ns + 6 ns 1.2 J	OP - 6 ns + 6 ns 450 mJ	-
PHOTO-THERMAL - Pulse duration Max energy	PT - 300 µs 2 J	-	PT - 2 ms 2 J

Repetition rate	up to 10 Hz	up to 10 Hz	up to 3 Hz
Beam delivery	articulated arm with detachable handpiece		
Available spot size	2x2; 3x3; 4x4; 5x5; 9x9 mm square; ø 3; 4.5; 6; 7.5; 9; 10.5 mm round; 8 mm fractional round		
Electrical requirements	3.7 kVA, 200-240 Vac; 50/60 Hz		
Dimensions and weight	530 mm (W) x 1043 mm (D) x 1060 mm (H); 150 kg		

VISIBLE AND INVISIBLE LASER RADIATION
Avoid eye skin exposure to direct or scattered radiation
Laser product: Class 4
Aiming beam: Class 3R

CE
0123

Note: National local authorities may put restrictions to the parameters indicated in the above table, or may limit or remove certain intended uses.
Specifications are subject to change without notice.

Quanta System products are manufactured according to the International standards and have been cleared by the most important International notified bodies. The Company is EN ISO 9001:2008 and EN ISO 13485:2012 certified. Quanta System S.p.A. was founded in 1985 and belongs to the EI. En. Group (a public company listed in the Star segment of the Italian Stock Exchange) since January 2004. The company, divided into three business units (medical, scientific and industrial) is specialized in manufacturing of laser and opto-electronic devices.

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