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Technology Advances Provide Non-Surgical Lifting and Contouring Solutions

By Lisette Hilton, Contributing Editor

sian countries are among those leading today's rapidly escalating worldwide demand for surgical and non-surgical cosmetic procedures. While North America has consistently led the global cosmetic surgery market, dominance is shifting towards Asia, particularly in the energy-based devices segment, according to the Global Cosmetic Surgery & Services Market Analysis 2015-2019 report.

According to the report, Asia is regarded as the next frontier, with the number of physicians and clinics in China and India steadily rising, along with medical tourism in the region.¹

Japan and India are among the top 10 countries worldwide that account for the bulk of cosmetic procedures performed today, as reported in statistics released by the *International Society of Aesthetic Plastic Surgery* (ISAPS) in 2017 – the most recent year for which information is available.²

Those numbers only begin to tell the story of how big of an impact cosmetic procedures are having on the continent. Case in point: South Korea. *The New York Times* has reported that cosmetic surgery is universal in South Korea, where even the Chinese are known to travel for aesthetic procedures.³ And an article in the *New Yorker* suggested that by some estimates, South Korea has the highest rate of plastic surgery per capita in the world.⁴

While achieving cultural beauty ideals in Asian countries might involve skull-altering surgeries to change the shape of chins and jawlines, rhinoplasty to redefine the nose or blepharoplasty to alter the contour of the eyes, not everyone has the time, money, desire, or is a candidate for invasive surgeries. Instead, many turn to less invasive energy-based skin lifting, tightening, contouring, collagen boosting and wrinkle reducing alternatives.

Global statistics show demand of energy-based and other minimally invasive cosmetic surgery options is widespread. RealSelf, a worldwide online community for consumers seeking cosmetic procedures, reports facial lasers are among the ten top most researched minimally invasive treatments in India in recent months.

As demand for non-surgical treatments grows, researchers are reporting improved outcomes from a growing arsenal of energy-based device options, including radiofrequency (RF), RF microneedling, CO_2 , fractional, ultrasound and others.

One recent example is a study by Chinese researchers, published in July 2018 in *Dermatologic Surgery*, suggesting fractional RF microneedling is effective and safe for facial skin rejuvenation in Chinese patients. Facial photoaging is a major cosmetic concern among these patients, the authors report.⁵

A Lifestyle Choice

According to Yu-Hao Huang, M.D., a plastic surgeon and director of the International Aesthetic Center in Kaohsiung City, Taiwan, the most popular energy-based facial procedure at his practice is laser therapy. While many women and men want more dramatic results from cosmetic surgeries like facelifts, many others – especially those who work – opt for procedures that require less downtime, he shared.





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Submental region before and after one truSculpt 3D treatment Photos courtesy of Jane Smith, M.D.

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"There are quite a few working women asking for annual non-invasive procedures with energy-based devices because they can return to work just one to two days after being treated," Dr. Huang said.

He estimated that 30% to 40% of patients coming to him for surgical lifting procedures, ultimately end up choosing energy-based technologies.

"In my mind, the best candidates for energy-based lifting are those asking for minimal improvement and those who don't want their friends to know they are coming for cosmetic procedures," Dr. Huang said. "Most of these patients would prefer almost no downtime, and they can afford the budget of annual maintenance procedures instead of changing their face in one surgery."

Nevertheless, energy-based face lifting isn't ideal for patients who want dramatic changes or others who have extremely loose skin, he added.

According to Miriam Emily Piansay-Soriano, M.D., a professor and chairman in the department of dermatology at Davao Medical School Foundation, president and medical director of MediSkin, and dermatology and dermatologic surgery consultant at Davao Doctors Hospital (Davao City, Philippines), cosmetic patients in the Philippines tend to be younger than those in Western countries, as the average age in the Philippines for men is 23 years and 24 years for women.⁶

"Most of the patients coming to our dermatology clinics for aesthetic enhancements lie between the ages of 25 to 40 years old and do not have a whole lot of disposable income," she said. "These are mostly patients still in the workforce who have allotted a part of their salaries for beauty maintenance, which has notably become a perceived necessity to achieve success in one's professional or personal life."

Energy-Based Skin Tightening, Lifting and More

Dr. Huang uses the high intensity focused ultrasound (HIFU) device Ultraformer,

from Korean-based Classys, for facial tightening and minimal lifting. The Ultraformer is designed to treat Asian skin types, with its parameters based on clinical studies on Asian patients, Dr. Huang reported.

For Michael H. Gold, M.D., medical director of Gold Skin Care Center and the Tennessee Clinical Research Center, in Nashville, Tennessee, U.S., and visiting professor of dermatology for Huashan Hospital, Fudan University (Shanghai, China) and visiting professor of dermatology at No. One Hospital of China Medical University (Shenyang, China), when it comes to non-surgical energy-based facial skin tightening, his go-to device categories are RF and ultrasound.

"There are a lot of RF devices that actually achieve some tightening," he said.

One differentiator is whether devices are monopolar or bipolar. Monopolar devices are more powerful, so patient comfort can become an issue. But manufacturers are working on making these treatments less painful, Dr. Gold noted.

RF devices are being used to not only tighten skin, but also reduce small areas of fat. RF devices join the ranks of CoolSculpting from Allergan and SculpSure from Cynosure, a Hologic company, in their ability to sculpt areas around the neck or jawline.

One example is truSculpt 3D, a noninvasive monopolar RF system from Cutera (Brisbane, California, U.S.), which is optimized to deliver targeted, repeatable and uniform sculpting of problem areas, including the neck, without visual downtime.

According to the manufacturer, truSculpt 3D takes a multi-dimensional approach to decrease circumference and permanently eliminate fat by delivering and holding clinically therapeutic temperatures to the subcutaneous adipose tissue to achieve the



Before and after one ThermiTight treatment Photos courtesy of Barry DiBernardo, M.D.



Before and after treatment with SygmaLift Photos courtesy of Naci Celik, M.D.









Before and after skin tightening treatment with YouLaser MT Photos courtesy of Paolo Sbano, M.D.



Before and after Fotona 4D® treatment with SP Dynamis Photos courtesy of Adrian Gaspar, M.D.

highest clinical efficacy in the shortest possible treatment time with enhanced safety and comfort.

Another option for sculpting a double chin is the ThermiTight treatment via the ThermiRF device from Thermi, an Almirall Company (Irving, Texas, U.S.). ThermiTight uses RF energy to heat targeted tissue to a clinician-selected temperature to regenerate collagen and tighten areas of the body, including the neck.

Dr. Soriano has been observing a new Asian beauty trend in recent years.

"In the last five years, the trend has been to convert round chubby faces, which present a childlike appearance, to a more V-shaped face, which gives a more mature, sophisticated look," Dr. Soriano said. "In my practice, this is best achieved with several sessions of unipolar radiofrequency treatments on the mandibular and submandibular areas of the face, in combination with toxin injections to the masseter."

For Dr. Soriano, the Reshape RF from Alma Lasers is her favorite energy-based device for achieving dramatic, consistent and reproducible face reshaping, lifting, toning, firming and tightening.

In addition to RF, Dr. Soriano said that among the more popular energy-based cosmetic options for women and men in the Philippines are fractional erbium or fractional CO₂ laser treatments for skin resurfacing.

"Picosecond lasers and ultrasound-based skin tightening therapy, such as Ultherapy from Merz, are also available to patients who can afford to pay a premium for pricier technologies," Dr. Soriano noted.

SygmaLift by Medixsysteme The (Ruggell, Liechtenstein) is another example of an energy-based system that has evolved to not only lift, but also contour and remodel the face. The synergism of the thermal and mechanical actions of focal ultrasound energy results in effective treatments that accentuate the neck and jawline, contour the eyes and lift the eyebrows.

With no surgery or incision required, Sygmalift is ideal for those who want firm and younger-looking skin. It is not just a facial lifting system, but also a facial remodeling option due to its ability to deliver energy to a depth of 5 mm. This creates safe warming of the targeted tissues noninvasively from the inside out, stimulating collagen and skin regeneration.

Avoiding Adverse Effects

Laser companies continue to develop technologies aimed at decreasing undesirable side effects, such as post-inflammatory hyper- or hypopigmentation (PIH). Along these lines, a technology favorite for Dr. Soriano is the HarmonyPro platform (Alma Lasers) with multiple handpieces.

"In my opinion, the PIXEL Erbium:YAG handpiece is the best for skin resurfacing in Asians because it rarely results in the PIH that we almost always see when resurfacing type IV skin with CO2 lasers," Dr. Soriano said.

The Youlaser MT from Quanta System (Samarate, Italy) offers a unique combination of CO2 and Er:Glass. This mixed technology combines ablative and non-ablative effects in sequential or simultaneous pulses and fractional patterns. Users can adjust the device to stimulate new collagen formation. Treatment of wrinkles, fine lines and loose skin can be performed with excellent results, especially on very delicate Asian skin, while preventing undesired side effects, according to the company.

Some lasers are carving a niche within the Asian market. For example, the Fotona4D from Fotona (Slovenia) makes laser-based face lifting a reality via the SP Dynamis. Offering a unique combination of four distinct modes of aesthetic treatment, harnessed in concert to combat facial aging, both the exterior facial and interior oral cavity can be treated, enabling full-thickness contraction of collagen for persistent tightening and volumization without injectables.

With two laser wavelengths (Er:YAG and Nd:YAG), the company says anti-aging is comprehensively approached from four different levels, working on deeper, medial



and superficial connective structures of the skin, as well as targeting imperfections. Furthermore, Fotona4D is a popular application among patients because it not only offers effective anti-aging, but also because there is little or no downtime, no anesthesia and the procedure can be performed year-round.

Another option for making skin more beautiful and youthful is RF microneedling, which offers patient benefits with few drawbacks, Dr. Gold expressed.

"Microneedling with RF is a little more invasive because of the needles. There's more pain. But patients need fewer treatments," Dr. Gold pointed out. "Maintenance is often pushed out about a year in most cases. And you get a nice tightening and lift. I think there are enough studies that have been done that if you use RF needles properly, you can achieve incredible results."

Today's options in RF microneedling are evolving. The latest generation of fractional RF platforms combine microneedle and needle-free fractional RF technology for skin resurfacing, wrinkle reduction and skin tightening. And, as non-laser therapy, treatment is appropriate for all skin types – even for pigmented patients.

Hironic (Gyeonggi-do, South Korea) has introduced a new and unique device based on plasma and ultrasonic technology. PLASONIC is a solution-delivery technology that uses plasma (PlaPass) and ultrasonic (SonoPass) modalities in one system to emit plasma ions – which are invisible to the eye – that transfer energy into the skin. As the cell adhesion molecules break, due to the plasma effect, the solution is dissolved into the skin temporarily. Then SonoPass applies physical pressure on the particles and helps them to absorb into the deep skin layer. With this technology, users are able to provide a



Before and after Fotona 4D Filler treatment Photos courtesy of Eugene J. Nowak, M.D.



Before and after one RF microneedling treatment with Secret RF Photos courtesy of Jeff Hsu, M.D.

wide range of customized premium programs for various indications, including wrinkles.

Expert Advice

Dr. Soriano feels it is important to buy devices from distributors that are known for reliable after-sale service and recommends that aesthetic physicians choose energybased devices that are user-friendly, with pre-set parameters for simplicity and ease of use. She also says that using the right device for the right patient is important.

"When you own many devices, you might not be able to remember all the parameters, which vary from one device to another," she said.

"If you buy devices with no pre-set parameters, start low and go slow with the energies or fluences you are using. Then slowly increase fluence with each successive treatment of the same patient, until you find the optimum parameters that give you the best aesthetic results," Dr. Soriano continued. "Try to stick to these parameters that are based on your experience, rather than following the accompanying manuals like a cookbook. Even in cooking, we always have to modify the recipes based on our taste!"

"There is a thin line between a successful result and a complication like fat atrophy with RF treatments, or PIH with fractional CO_2 laser resurfacing – especially due to patient variability, differences in environmental (sun) exposure, and variations in post-procedural skincare," she said. "Nevertheless, working with great devices and producing great results gives every physician and patient great satisfaction."

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Novel RF Device Resolves a Host of Feminine Health and Wellness Concerns

By Jeffrey Frentzen, Contributing Editor



Susan G. Murrmann, M.D., F.A.C.O.G. Gynecology Specialist Co-Founder McDonald Murrmann Center for Wellness and Health for Women Memphis, TN, USA

As women grow older, the effects of childbirth and menopausal issues can lead to vaginal laxity, urine leakage, difficulty achieving orgasms and dryness. These and other gynecological health concerns often combine with the normal aging process to produce a range of emotional and physical challenges for women. Plus, medical and aesthetic problems in this area have traditionally involved some kind of a surgical procedure, with the associated discomfort and downtime.



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Many women that would opt out of vaginal surgery might opt in to solving these women's health-related issues via ThermiVa® from Thermi, an Almirall company (Irving, Texas, U.S.), a nonablative aesthetic device that effectively targets muscles, skin and nerves with radiofrequency (RF)-based energy to improve tissue tone and function, increase vaginal moisture levels and lubrication, and restore flexibility and freshness to a woman's most intimate of areas with little-to-no downtime.



Vaginal canal mucosa before and 120 days after treatment with ThermiVa. Results include improvement in mucosal maturation with increased number of cell layers, increased papillary dermis, no flattening of the rete ridges, improved glycogenation and denser stroma. Images courtesy of Thermi

This minimally invasive system has become extremely popular throughout Asia, reported Susan G. Murrmann, M.D., F.A.C.O.G., a gynecology specialist and co-founder of the McDonald Murrmann Center for Wellness and Health for Women in Memphis, Tennessee, U.S.

"ThermiVa offers a more personalized approach to women's health," she began. "During my last tour through the Asia-Pacific (APAC) region, the procedure had generated a lot of interest in Korea, Thailand, Vietnam, India and especially China; while Japan, which is a far more conservative country, has been comparatively slower to adopt feminine rejuvenation."

Using an S-shaped handpiece, treatment tightens external and internal vulvovaginal tissue via an RF-powered thermistor tip. This same probe is used on the external labia to improve appearance, as well as inside the vagina to reduce laxity, prolapse and incontinence. To address orgasm dysfunction, the probe is applied to the clitoral area, which advances nerve sensitivity and sexual response.

Overall, the ThermiVa procedure improves a woman's complete vaginal health, said Sejal Desai, M.D., D.N.B., D.H.A., M.I.C.O.G., D.G.O., F.C.P.S., D.F.P, a gynecologist in Mumbai, India, and founder of the *Indian Academy of Vaginal Aesthetics.* "The treatments are very simple, painless and have no downtime. Patient acceptance and follow-up has been good, too, for this popular therapy," she said.

According to Dr. Murrmann, the procedure is easy to perform and allows the physician to direct RF energy with extreme precision. "You can customize treatment to your patient based on their needs, and knowing exactly where to apply the energy," she noted. "The operator monitors tissue temperature via a minimally invasive treatment probe. Whether the patient is more concerned with the aesthetic appearance of their vaginal area, skin tightening or improving incontinence or sexual function, ThermiVa can address those issues and more."

Patient satisfaction has been rewarding, said Dr. Desai. "We have an entire



Vaginal mucosa before and 120 days after treatment with ThermiVa. Results include a significant increase in newly formed, haphazardly arranged collagen. Images courtesy of Thermi



Vaginal mucosa before and 120 days after treatment with ThermiVa. The post-treatment biopsy demonstrated denser submucosal stroma and increased vascularity. Images courtesy of Thermi

gallery of testimonials and blessings. My favorite line is, 'Doc, you changed my life.' I recall a young mother with urinary leakage who fell at my feet after her first treatment, as she could finally go to the gym wearing tight track pants without panty liners."

ThermiVa is FDA-cleared for dermatological and general surgical procedures for electrocoagulation and hemostasis. In addition, the device has been FDAapproved for dermatologic conditions, such as skin laxity and dry or thin skin; as well as for surgery and surgical nerve ablation. In Europe, ThermiVa has obtained a CE Mark for vulvovaginal laxity or for treatment of loose tissues of the vulva and vagina.

The key to consistently successful outcomes is the device's built-in temperature control system. "You have two monitors, the unit's temperature control and the patient, who is your best monitor," Dr. Murrmann expressed. "You are able to gauge which temperature is best for your patient and what they can actually tolerate, because some women with thinner skin cannot tolerate more than 42° or 43° . Some can tolerate 45° to 46° ."

ThermiVa's exceptional safety profile gives it an edge over other technologies vying for APAC's feminine rejuvenation market, stated Red Alinsod, M.D., a urogynecologist in Laguna Beach, California, U.S., and medical director for women's health at Thermi.

"After 103,000 cases there has not been a serious adverse event. No blisters and no burns. One report of bruising after hundreds of thousands of cases," he stated. "Safety wise, it has proved itself."

Dr. Desai echoed that conclusion. "ThermiVa is very safe. The usual, minor complaints are an occasional feeling of warmth during the procedure, or a tingling feeling in the vagina for a day or two after the procedure. Other than that, no side effects have been observed." In addition, Dr. Alinsod argues that RF-based energy is preferable to other available technologies, such as lasers and ultrasound when performing feminine rejuvenation.

"Most physicians will see that RF is exponentially safer than lasers and are also more economical as lasers are a lot more expensive than RF devices. RF-based devices will do well going forward," he said.

Dr. Murrmann concurred. "When you consider the physics of RF energy and CO_2 energy, a laser is used as more of a resurfacing device than anything else. For instance, if you're treating a menopausal woman then resurfacing is not something that you want to do. You may get temporary swelling and increased secretions, but the laser only penetrates 1 mm of depth and is attracted to water, thus, if your patient is menopausal then she does not have much depth to her epithelium and doesn't have a lot of water. You just don't get the same benefits with the use of lasers. Ultimately, ThermiVa's implementation of RF energy is the better choice."

To achieve these best results, some clinical training is essential, noted Dr. Desai. "Physicians need to fully understand the indications this procedure can treat, as well as become familiar with how the machine works. However, it has a very easy, gentle learning curve."

Considering this elevated need for training, Thermi recently announced a new ThermiVa training course in Manila, the Philippines.

"There is a huge interest in the Philippines and Asia in general, for training in this area," Dr. Alinsod noted. "People from Malaysia, Thailand, China and other regions are coming to Manila for both didactic and hands-on training."

As the procedure gets taken back home, physicians learn that ThermiVa is a complete women's health solution, Dr. Desai opined. "There are so many health benefits that impact not only the vagina, but also overall quality of life. I feel in the future ThermiVa will become a household name, and everyone will do it. The market potential is humongous."

SP Dynamis Reduces Fat and Tightens Without Consumables

By John Jesitus, Contributing Editor

Combining both 1064 nm Nd:YAG and 2940 Er:YAG lasers, the SP Dynamis by Fotona (Ljubljana, Slovenia and Dallas, Texas, U.S.), reduces fat and tightens skin anywhere on the body. The TightSculpting[®] procedure achieves adipolysis and collagen remodeling through the deep heating from super-long Nd:YAG pulses and controlled surface heating using Er:YAG pulses.



Pham Huu Nghi, M.D., Ph.D. Plastic Surgeon Hanoi, Vietnam

"SP Dynamis is a modern laser system with two wavelengths and many functions, ranging from skin and vaginal rejuvenation, to fat reduction and treatment of vascular anomalies," said Pham Huu Nghi, M.D., Ph.D., a plastic surgeon based in Hanoi, Vietnam, who has been using the SP Dynamis since December 2015.

"The fat reduction function of the SP Dynamis is similar to that of some other energy-based devices that produce hyperthermia of adipocytes, but without consumable materials, which lowers treatment costs," Dr. Nghi explained.

Through experience, Dr. Nghi learned that he could apply TightSculpting to any localized subcutaneous adiposities regardless of fat thickness. His patients typically want to treat submental fat, abdominal fat and fat in the thighs or biceps.

Before treatment, Dr. Nghi thoroughly counsels patients about the procedure's mechanism and protocol, as well as pros and cons. Because TightSculpting works through adipolysis, "it provides gradual fat reduction. These facts have to be properly communicated to patients."

Marking larger treatment zones requires dividing them into multiple smaller zones – nine zones for the abdomen, for instance.

For the first TightSculpting step, Dr. Nghi uses the 1064 nm laser in Fotona PIANO[®] pulse mode, with continuous motion for even heating.

With pulses measured in seconds, Fotona PIANO mode provides full-thickness bulk heating quickly, safely and comfortably. Concentrating energy delivery subcutaneously stimulates the metabolism of fat cells while leaving the epidermis intact, he added. Dr. Nghi typically uses 1.5 second pulses at 1.2 W/cm², delivered by Fotona's L-Runner scanning handpiece, which can cover up to a 64 cm² exposure area.

The L-Runner's MatrixView monitor allows for precise temperature control. For the abdomen and thighs, Dr. Nghi uses a maximum temperature of 40° C, with four to five minutes of exposure time per zone. The maximum temperature for other zones is 38° C, with exposure times of three to five minutes each. Surface air cooling helps keep patients comfortable.

The procedure's second step involves applying the 2940 nm laser with the Fotona SMOOTH[®] mode. Here, Dr. Nghi uses Fotona's R11 handpiece with a 7 mm spot, operating at 2 J/cm² and 3.3 Hz.

Immediately after treatment he massages the treated areas for 20 minutes with a vacuum therapy device to improve lymphatic drainage. Additionally, patients ride a stationary bicycle for 20 minutes to help metabolize the fatty acids that TightSculpting releases.

For the first month post-procedure, patients wear compression garments over the treated areas for 12 hours daily, then for six hours daily the second month. His patients receive a maximum of six treatments total, separated by three to four weeks.

Dr. Nghi has observed results that last for at least one year. In a 32-patient study that he conducted, TightSculpting resulted in reductions of up to 9 mm at the waist and up to 14 mm in the skin folds near the belly button.









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SLIMUS Combines Laser and Vibration for Improved Body Contouring Outcomes

By Hong Seok Kim, M.D., Ph.D.



40-year-old male patient before and ten weeks after treatment of the upper and lower abdomen and both flanks with SLIMUS Photos courtesy of Hironic

For busy consumers, saving time is an attractive concept, and I am no exception. When I shop, I find features that can save me time to be a plus. My body conscious patients are no different.

In today's aesthetic market, the number of patients looking for no-downtime methods to lose fat is steadily increasing. While liposuction is the most conventional approach to body contouring, it often involves post-operative recovery, which means precious time lost. In addition, risks are high. Enter SLIMUS, a non-surgical, non-invasive technology from Hironic (Gyeonggi-do, South Korea), that gets the job done much more quickly.

SLIMUS (Slim Our Body) is a Laser Vibration Alliance Technology (LVAT) system that features a 1060 nm diode laser with vibration mode. The laser energy precisely penetrates down to the fat cells residing under our skin. The level of moisture loss and dermis damage caused by absorption of the laser application is low, making it an ideal way to deliver energy to subcutaneous fat. In addition,

the melanin absorption level is also low, meaning it can be safely applied regardless of skin color.

Lipolysis via application of the 1060 nm laser is most effective at temperatures between 42° to 47° C. SLIMUS maintains an ideal temperature during treatment to accelerate structural integrity damage of fat. The unique thing about LVAT is that it does not rely solely on a laser to eliminate the fat - it also utilizes vibration. Introducing vibration (vibration mode) after weakening the cell structure allows more impact. The operator can choose from three vibration modes based on skin and fat layer thickness of the target area for individual patients, to minimize any discomfort during treatment. The vibration mode can effectively produce visible changes sooner. These disrupted fat cells break down into smaller sizes, allowing your body to quickly remove them from the system through the mechanism of macrophage activation.

Since SLIMUS is a non-invasive technology, patients do not need to set aside a lot of time for recovery. For instance, the belt-type laser applicator leaves no bruises or red marks on the skin – common from suction type applicators - and there is no significant difference before or after treatment in terms of what you can wear and/or do. SLIMUS also supports multiple applicators to allow more coverage and flexibility.

A typical treatment takes just 25 minutes at 1.2 W. Considering that other non-surgical treatments available usually take 60 minutes, this is a significant time savings. In other words, you can have lunch, get treatment and go back to your office with less fat.

In addition, it is possible to have two 25-minute sessions in succession unless you are particularly sensitive. Undergoing two sessions can cover eight spots over 50 minutes within a single day. It is still less than an hour and patients have greater satisfaction.

SLIMUS satisfies both patients and doctors, offering a safe way to induce adipocyte destruction with damaged fat cells subsequently cleared by immune responses, and decreasing the volume of adipose tissue. The potential of this technology is huge. I feel that continued exploration and discussions will further establish many more exciting applications in the future.



Hong Seok Kim, M.D., Ph.D.

Rong Seok Kim, M.D., Fn.D. Specializing in dermatology, Dr. Kim is the former head of the Dermatology Department at Jeju Welfare Hospital, former director of Jeju Nohyeong Areumdaun Dermatology Hospital and consultant dermatologist at NAVER Jisick-IN. He is a member of the Korean Dermatological Association, The Korean Society for Investigative Dermatology, The Korean Society for Dermatologic Surgery, The Korean Society for Laser Medicine and Surgery, The Korean Society for Psoriasis, and The Korean Society for Acne Research.

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Discovery Pico Series Treats Asian Skin Types with Unparalleled Efficacy and Safety

By John Jesitus, Contributing Editor





Kei Negishi, M.D., Ph.D. Plastic Surgeon Tokyo, Japan

Peter Peng, M.D. Dermatologist Kaohsiung, Taiwan

For benign pigmented lesions, such as solar lentigines, the Discovery Pico and Pico Plus by Quanta System (Milan, Italy) facilitate gentle treatments with stable energy delivery. These factors provide predictable results while reducing the risk of post-inflammatory hyperpigmentation (PIH).

"Patients with darker skin types have a higher risk of PIH after any kind of laser treatment," said Tokyo-based plastic surgeon Kei Negishi, M.D., Ph.D., who has been using the Discovery Pico, which includes 532 nm and 1064 nm wavelengths, since 2016.

When treating solar lentigines, Dr. Negishi uses minimal fluence to achieve slight whitening of treated skin immediately after the laser energy is delivered. Here, she said, the smooth, stable beam provided by Quanta's Optibeam handpiece is very helpful. "If the laser profile is not smooth, it is difficult to judge the skin reaction – one area becomes very white and another does not."

Peter Peng, M.D., a dermatologist in Kaohsiung, Taiwan has had the Discovery Pico Plus, which includes a 694 nm ruby laser, since early 2018. In his experience, the Optibeam handpiece loses minimal energy when transmitting light to the skin, and its flat-top beam profile is well-suited for pigment treatments and laser toning.

Unlike Q-switched nanosecond lasers, which work primarily through photothermal effects, ultrashort picosecond pulses create a photoacoustic effect by firing faster than the target tissue's thermal relaxation time. "We cannot completely avoid PIH, but we can reduce the risk of it," Dr. Negishi said. Using less heat causes less inflammation, she explained, which, in theory, reduces the likelihood of PIH. "This is why I like to use the Discovery Pico for benign pigmented lesions."

According to results of a study conducted by Dr. Negishi, the laser provided greater improvement in lentigines with less epidermal damage and a lower risk of complications than a Q-switched laser.

For epidermal lentigines on the face, dorsal hand and arm, Dr. Negishi often uses the 532 nm wavelength, with topical lidocaine for patient comfort. "Typically, it takes one or two treatments to achieve more than 75% clearance."

In another Discovery Pico study (unpublished), authored by Dr. Negishi, only 12% of facial lesions needed two treatments.

When Dr. Peng treats benign pigmented lesions, he typically begins with Q-switched ruby spot treatment (3 mm spot size, 3 to 4 J/cm²). He follows this immediately with fractional ruby treatment (8 mm spot, 0.44 J/cm², 3 Hz), then fractional picosecond treatment at 1064 nm (8 mm spot, 0.2 to 0.5 J/cm², 10 Hz).

"This approach first focuses on pigmented lesions, then lightening of skin color, which is a huge request from Asian patients, followed by rejuvenation and improving skin tone," he stated.

Addressing acne scarring with the 1064 nm wavelength requires more aggressive treatment (0.8 to 1.0 J/cm²). According to Dr. Peng, the laser's high peak power (1.8 GW at this wavelength) creates better and faster improvements.

Dermal pigmented lesions require three to six sessions, versus at least four to six for rejuvenation, including atrophic acne scars. As Dr. Peng expressed, "Whatever the treatment, the laser's lack of consumable items allows for more flexible treatment plans and a faster return on investment."



69-year-old female before and three months after one treatment with Discovery Pico with 532 nm wavelength Photos courtesy of Kei Negishi, M.D., Ph.D.



YOUR SKIN

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The picosecond laser specially design for acne scars and benign pigmented lesions





APAC Emerging as the New 'Mecca' of Medical Aesthetics

By Jeffrey Frentzen, Contributing Editor

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the Asia-Pacific (APAC) region, the medical aesthetic market continues to grow faster than any other area in the world. Throughout the region, and especially in China with the rise of its wealthy middle class, people have grown more aware of beauty issues, becoming well-informed about aesthetic treatments via the Internet and social media, and actively seeking out procedures. Meanwhile, the physician's armamentarium has similarly expanded to include non- and minimally invasive solutions that appeal to more people.

APAC Emerging as the New 'Mecca' of Medical Aesthetics



William T. Kelley Global Business Consultant Coto de Caza, CA, USA



Michael Rich, M.B.B.S., F.A.C.D., A.C.C.S. Dermatologist Founder-Director Enrich Clinic Melbourne, Australia



Barry Rigby Vice President of International Sales Thermi Singapore



Michael Gold, M.D., F.A.A.D. Dermatologist Medical Director Gold Skin Care Center Tennessee Clinical Research Center Nashville, TN, USA



Victor Liu, M.D. Plastic Surgeon San Francisco. CA. USA

According to the American Society for Aesthetic Plastic Surgery, global cosmetic procedures have expanded by nearly 40% over the past five years, with non-surgical procedures increasing in popularity.

"China is the biggest booming market," stated William T. Kelley, a global business consultant and former vice president of Europe, Middle East & Africa at Cynosure, Inc.

"While Korea has always adapted new technologies quicker than anywhere else, and this is still the case, China and Taiwan are currently the biggest markets, and Thailand and Singapore have emerged as growing secondary sectors," he stated.

The market is definitely still expanding, agreed Michael Rich, M.B.B.S., F.A.C.D., A.C.C.S., a dermatologist and founder-director of the Enrich Clinic (Melbourne, Australia).

"More patients of all ages are seeking cosmetic treatments. Their aim, both young and old, is not so much to look younger, but to look better," he indicated. "No doubt, people are seeking treatments and trying to achieve their benefits with minimal or no downtime, accepting the fact that the results may not be as significant as surgery or other solutions."

In the past, Thailand, the Philippines and Singapore were never significant business opportunities for manufacturers and developers, noted Barry Rigby, vice president of international sales at Thermi (Singapore). "However, we've seen good growth in all countries, including Vietnam, the Philippines and Indonesia," he pointed out.

"Also, there is a lot more activity in Australia and New Zealand these days," Mr. Rigby continued. "Thailand is especially active now, too. While India has become kind of isolated from the rest of Asia, it is also a huge market."

Japan stands somewhat apart from the crowd, Mr. Kelley noted. "It has always been a very conservative market, and even the number of early adopters in Japan is very small compared with the other, larger markets in Asia. Thus, it is growing more slowly," he said.

Despite the market differences among APAC nations, their populations all want to address the same basic indications. "Therapies focused on pigmentary problems and skin lightening procedures are still big business in this region," noted Michael H. Gold, M.D., F.A.A.D., a dermatologist and medical director of Gold Skin Care Center and the Tennessee Clinical Research Center in Nashville, Tennessee, U.S.

"The biggest thing in Asia is skin," Mr. Kelley reiterated. "Asian skin types have a lot of problems with melasma and pigmentary issues. They are also lining up at clinics and hospitals to eliminate hypopigmented blotches and to whiten the skin."

Increasingly, practitioners are solving pigmentary problems using energy-based modalities, stated Dr. Rich. "In particular, the use of picosecond lasers is becoming more sophisticated, in which its various wavelengths – such as 532 nm, 1064 nm and 755 nm – and the fractional modes are better utilized. When used in tandem with vascular lasers, depigmenting topical preparations and tranexamic acid, results should significantly improve."

Lasers are also a go-to treatment for addressing depigmented scars, which have been problematic in the past, but show better results when treated with fractional CO₂, Dr. Rich continued. "The laser stimulates melanin production deep within the depigmented scars. Cell cultures can be used to improve the outcome, as well."

One such example is the SmartXide system from DEKA M.E.L.A. S.r.l. (Calenzano, Italy), SmartXide² DOT/RF, provides different pulse shapes that accommodate a variety of indications. In addition to providing both CO₂ and radiofrequency (RF)-based technology, this system allows full parameter control (ablation, thermal zone, erythema), giving physicians the ability to tailor treatments for any patient.

The best aesthetic outcomes are often achieved through the use of different modalities in tandem. For instance, a popular treatment for acne scarring and pigmentation following trauma is the application of RF-based microneedling with glycolic acid peels and light-emitting diodes (LEDs).

"Microneedling treatments are very effective for skin rejuvenation and scar treatments," noted Dr. Rich. "The addition of RF energy to microneedling has benefits that many regard as superior, resulting in significant benefits without significant downtime."

Microneedling is frequently used to deliver serums on or just beneath the surface of the skin, stated Victor Liu, M.D., a plastic surgeon in San Francisco, California, U.S.

"Even though the needles don't go very deep, microneedling has its place," he noted. "A lot of people use it, for instance, to drive hyaluronic acid, PRP and medications into the skin. The good thing about microneedling is that you can delegate its use to an aesthetician."

Among new, cutting edge serums coming out, NCTF® BOOST 135HA from FILLMED Laboratoires by Filorga (Paris, France) is a distinctive anti-aging, poly-revitalizing solution that nourishes the skin by creating an optimal environment for fibroblasts, which are responsible for the production of the body's collagen, elastin and hyaluronic acid (HA). The product's formula combines HA and a proprietary complex of more than 50 active ingredients, including vitamins, minerals, amino acids, coenzymes and antioxidants.

The combining of modalities in parallel to achieve a particular therapeutic result will continue as a strong trend, noted Dr. Rich.

"Other examples include the use of liposculpture for body contouring through the removal and reshaping of fat deposits, followed by skin





Before and after three picosecond laser treatments to remove freckles Photos courtesy of Fabián Pérez Rivera, M.D.





Before and after two SmartXide DOT therapy sessions given 30 days apart Photos courtesy of Giovanni Cannarosso, M.D. and Piero Campolmi, M.D.

APAC Emerging as the New 'Mecca' of Medical Aesthetics





Before and after one NCTF BOOST 135HA topical treatment Photos courtesy of FILLMED Laboratoires by Filorga





Before and after one NCTF BOOST 135HA topical treatment <u>Photos courtesy of FILLMED Laboratoires</u> by Filorga

tightening procedures, which we do because many times removing the fat does not result in a level of retraction that totally satisfies the patient," he said.

Energy-based skin tightening is very popular throughout Asia-Pacific. Making inroads here are the latest high-intensity focused ultrasound (HIFU)-based devices, which deliver concentrated energy to multiple layers of tissue, to tighten the skin and remove stubborn fat without affecting surrounding areas.

"While body contouring and fat reduction procedures are popular, I do observe more injectables business than ever before," said Dr. Gold.

"From an aesthetic company point of view, there are more players in the region now. Allergan is operating in China in a big way, and other filler and neurotoxin companies are waiting to obtain regulatory approvals," he indicated. "In particular, European injectables companies are ramping up their business throughout Asia, in order to grow their footprint beyond Europe where this business has been going flat."

The demand for non-surgical facial rejuvenation (via dermal fillers and neurotoxins) and skin tightening treatments increases as people grow older. With more than one-quarter of its residents over the age of 65, Japan has the oldest population in the world. And as reported by the U.N., China's aging population is on track to double over the next 20 years.

And although surgical solutions are required for some therapies, nonsurgical procedures are becoming more widespread across APAC. Led by patient demand, more Asian physicians have adopted non-invasive variations on common surgical treatments, such as performing a rhinoplasty using just fillers.

Another example is the V-shaped face, in which chin surgery is combined with jaw surgery to create a more feminine jawline and achieve a more balanced overall look. "A less invasive option would combine botulinum toxin with fillers to the chin," noted Dr. Rich.

Compared with other methods, thread lifting procedures and facelifts utilizing sutures are less widespread in Asia, but are emerging as a more common option to the surgical facelift.

Among patients of all ages, the once much-publicized trend of Asian women desiring to achieve a "Western look" has mostly sputtered. "That phenomenon has always existed, but I wouldn't say it is growing," stated Mr. Kelley. "It is like hair removal, which is a good, stable market, but not growing."

In terms of the most popular cosmetic surgery procedures in APAC, blepharoplasty remains a top choice among both men and women. East Asian blepharoplasty, or double eyelid surgery, is uniquely popular among some Asian people. This surgery creates a supratarsal epicanthic fold in the patient's upper eyelid, changing the look of the upper eyelid that extends to the inner corner of the eye. Aside from blepharoplasty, nose reconstruction and chin alteration are popular facial procedures across China, Japan and Korea. Jawline slimming and strengthening are among the most desired procedures for both men and women.

One of the more unique procedures reported is head shaping, introduced in 2017 in Korea, which involves surgically reshaping the head.

The new health and wellness mindset also includes new regenerative-type concepts and therapies, most of which are experimental but show anecdotal success, noted Dr. Liu. "The development of stem cells for use in skin and facial rejuvenation is very promising because the stem cells can actually regenerate what is lost. In the past, what we did was fill a depression in the face with some fat or fillers. With stem cell-based facial treatments, to our surprise, the depression becomes more than just filled up; the skin is literally renewed and looks much better," he said.

Another example is the addition of platelet-rich plasma (PRP) treatments with male hormones and other drugs, such as spironolactone and minoxidil for hair loss, said Dr. Rich. "Additionally, finasteride is now given to male and female patients to increase the benefits of treatment."

Feminine rejuvenation is another big trend right now, expressed Dr. Liu. "Consumers are aware of the new energy-based feminine rejuvenation approaches available, and now there is a huge increase in that field.

"In male patients we know erectile dysfunction and impotence affects 50% of those over 50," he continued. "An emerging treatment trend is the use of shockwave therapy, and many times that helps. All of these procedures fall into the area of male and female health and wellness, and more aesthetic specialists are getting involved in that field."

Putting aside the trends of the future and focusing on the current state of the industry, governing bodies in the APAC region, notably China, have recently stepped up efforts to better regulate medical devices and other aesthetic products, such as fillers and neurotoxins.

According to Mr. Rigby, "The regulatory timeline in China is now actually quite long, around three years. They closed some loopholes, too. For many years there was sort of a gray area, in which a manufacturer could enter the spa market with lower powered products. They did that because they were having a hard time obtaining regulatory approval. Today, everybody has to get the proper regulatory approvals."

With the regulatory environment normalizing, an educated middle class population clamoring for aesthetic treatments, and sustained economic growth, the APAC region has become a mecca of anti-aging solutions.

"There is so much going on in Asia it is hard to wrap your head around it all," said Dr. Gold. "Right now, however, we are seeing a lot of interest among dermatologists and plastic surgeons in the region, and I see that the market will keep expanding exponentially. The sky is the limit." "There is so much going on in Asia it is hard to wrap your head around it all. Right now, however, we are seeing a lot of interest among dermatologists and plastic surgeons in the region, and I see that the market will keep expanding exponentially. The sky is the limit."

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The Facelift Revolution

Physicians Achieve Surgical-Like Results with Minimally Invasive Techniques

By Jeffrey Frentzen, Contributing Editor

hen it comes to performing minimally invasive facial rejuvenation, the tools of the trade are numerous: dermal fillers, neurotoxins, collagen stimulating lifting threads; platelet-rich plasma (PRP); fat transfer and more. Simply stated, one does not need surgery or energy-based devices to achieve the best facial rejuvenation outcomes.





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The Facelift Revolution Physicians Achieve Surgical-Like Results with Minimally Invasive Techniques

Due to patient demand, increasingly practitioners opt to rejuvenate and volumize the face using this arsenal of minimally invasive techniques, rather than a scalpel. Many varieties of non-surgical facelifts, pan-facial rejuvenation, and other modern aesthetic techniques are popular throughout the Asia-Pacific (APAC) region. These are often referred to as the "liquid facelift".

While surgical facelifts can involve serious downtime and complications, less invasive approaches often yield immediate and even long-term results, with fewer complications and virtually no patient downtime.

According to Nantapat Supapannachart, M.D., a dermatologist and CEO of Apex Medical Center, which operates 20 aesthetic centers in Thailand, such treatments are fast becoming the first option for facial rejuvenation in Asian clinics.

"Offering a combination of existing non-surgical techniques and technologies to optimize individual results is the recent trend in facial rejuvenation," she maintained. "The currently available options of injectables, neurotoxins, thread lifting and cell-assisted fat transfer actually target volume loss and expression lines, which are the main reasons for an aging appearance."

Many physicians continue to rely on these less invasive, non-energybased approaches to achieve effective facial rejuvenation because, "light-based and other energy-based tightening lasers are still limited in use throughout the region," Dr. Supapannachart added.

Non-surgical or minimally invasive procedures are in high demand throughout the APAC region, reiterated Kwun Cheung Hau, M.B.Ch.B., M.R.C.P., F.H.K.A.M., F.H.K.C.P., D.C.H., a dermatologist in Hong Kong.

"People want a natural, subtle effect after procedures," he indicated. "Most Asians want to receive compliments from their friends, who are unaware of the fact that they underwent surgery."

"This approach is very popular in this region, representing a huge market that is growing at a fast rate, around 20% annually," stated Peter Huang, M.D., a plastic surgeon at the Rebecca Cosmetic Center in Taipei, Taiwan. "Patients are really interested in the minimally invasive aspect of these treatments," he said.

"With minimal or no downtime, physicians can now plan custom treatment regimens by catering to a patient's individual timeline and budget. The results are manageable and can be dramatic or subtle depending on the emotional desires of the patient," Dr. Supapannachart indicated.

"In addition, volume replacement is one advantage not seen in conventional surgical lifts," she pointed out. "From my point of view, reversibility of non-surgical facial rejuvenation is a major advantage over surgery."

With Asian skin particularly, minimally invasive facial rejuvenation is an ideal approach, stated Peter Hsien-Li Peng, M.D., a dermatologist, and founder and director of the P-Skin Professional Clinic & Hair Restoration Center in Kaohsiung, Taiwan.

"Because of the facial bone structure there are differences between Caucasian and Asian patients. The Asian patient has areas of bone deficiency, such as a low nasal bone and chin recession, infraorbital maxilla recession, etc.," he elaborated. "These aspects make Asian people seek transformative treatments at a very young age, often in their 20s."

"Dermal fillers of different G-primes help to create 'architectural effects,' such as bony prominences, volumization, structural support and skin hydration," Dr. Supapannachart noted.

ART FILLER® from FILLMED Laboratoires by Filorga (Paris, France) is an example of a modern filler range that provides a balance of sculpting, volumizing and smoothing properties depending on the indication. This distinctive set of HA-based gel fillers feature proprietary Tri-Hyal® technology, which creates a flexible and moldable material for a naturally-sculpted look. ART FILLER products address superficial to severe facial wrinkles, volumization of the lips, skin moisturizing and revitalization, as well as volume creation and restoration, especially for the cheekbones and chin.

Improved products and injection techniques enhance and better support the target tissue instead of just filling spaces, Dr. Huang pointed out.

"We call it building the wall. We are filling some areas to boost the tissue and also decrease its heaviness," he explained. "We also call them plus and minus procedures. We try to balance the facial tissue using injectables. To be successful, it is critical for the physician to thoroughly understand the facial anatomy."

Adding volume to the face is often central to rejuvenation treatments, and involves the full artistry of the physician, noted Alexander Rivkin, M.D., a cosmetic surgeon in Los Angeles, California, U.S. "When we replace the volume in the mid-face, what we are doing more than anything else is reframing the eyes so the focus of the face comes up to the eyes and the person looks younger. Otherwise, the focus shifts down to the lower third of the face, and the person looks older."

"Newer injection techniques have focused on lifting tissue in order to create more projection for a youthful and attractive looking face," Dr. Peng commented.

"Lifting the face, is to a small degree, a physical lifting of the skin," Dr. Rivkin indicated. "This is because we're expanding the mid-face. However, I think that is just a minor effect, while the major effect of the lifting is that your perception of the face changes when you bring the focal point of the face up to the eyes."

According to Dr. Supapannachart, mixing modalities is common. "During initial contouring of the face and neck, we use skin tightening devices as a basic foundation, but complement that with thread lifts," she said.

First popularized in the 1990s, thread-based lifting procedures have recently made a comeback. With this treatment, absorbable sutures derived from biodegradable polymers, help lift and re-contour the lower and mid-face. This procedure fell out of favor around 2000, but in 2015 the FDA approved a new variation called the thread lift, which takes less time and is less invasive than earlier versions.

Two approved products have emerged, one featuring PDO (Polydioxonone) threads, and the other utilizing suspension threads with absorbable, dissolving suture material. These require minimally invasive applications to lift and tighten sagging skin tissues by inducing collagen production.



Before and after a combination treatment regimen of Botox injections to the forehead, glabella, crow's feet and mentalis; Voluma XC to the cheeks; Radiesse to the chin and bilateral prejowl sulci; and Juvederm Photos courtesy of Peter J. Damico, M.D.

"We try to balance the facial tissue using injectables. To be successful, it is critical for the physician to thoroughly understand the facial anatomy."







60-year-old before and six months after treatment with bidirectional barbed threads (12 cm); two threads placed on each side of the face to reposition the redundant fat compartments and provide support for the mid-face and lifting of the lower face Photos courtesy of Kwun Cheung Hau, M.B.Ch.B., M.R.C.P., F.H.K.A.M., F.H.K.C.P., D.C.H.

"The goal is the lifting of saggy tissue, which is done in combination with filler and neurotoxin injections. If the skin quality needs further improvement, I will place fine, simple PDO threads in the dermal or subdermal layer to enhance new collagen formation."

The Facelift Revolution Physicians Achieve Surgical-Like Results with Minimally Invasive Techniques

Thread suspension procedures are an essential part of Dr. Hau's aesthetic practice. "Thread lifting is unique and effective, requiring a strong aesthetic sense and surgical acumen, and patients are growing more aware of this treatment option," he said.

"I prefer to use barb threads, particularly the bi-directional suspension thread for successful lifting and tissue repositioning strategies. As there are many options on the market, one has to be careful in choosing the appropriate product and evaluating the thread design, as well as the scientific materials and available clinical evidence."

"I would actually venture to say that most practitioners put threads in and then flood the area with dermal fillers," said William Philip Werschler, M.D., F.A.A.D., F.A.A.C.S., a dermatologist and clinical researcher in Spokane, Washington, U.S. "I use a lot of Sculptra, and sometimes use Bellafill or the occasional HA. So, you not only get lifting, via suspension of the skin, but you also volumize.

"Aging is a loss of volume and lift. With fillers you really only address volume," he added. "For the most part, with surgical sutures or facelifts, all you're doing is addressing gravity or lifting. With PDO threads, there's some lifting, and the threads also dissolve and encourage the growth of collagen so you get volume."

Dr. Peng utilizes thread lifting for repositioning of fat pads. "The goal is the lifting of saggy tissue, which is done in combination with filler and neurotoxin injections," he described. "If the skin quality needs further improvement, I will place fine, simple PDO threads in the dermal or subdermal layer to enhance new collagen formation. We do a lot of thread lifting and are developing injectables that will replace the surgical lifting effect."

Threads do have their issues, stated Dr. Werschler. "They can break. Occasionally, the little cones can extrude or they make hard little bumps. People will play with them like they would play with a pimple," he noted. "Anytime you have a suture, even with really good technique, you can have extrusion of the ends of the suture. It just happens. Even though you do a good job placing them, it doesn't mean they will stay the same forever."

Beyond facial injectables and thread lifts, lie new clinical methods that involve PRP, stem cell / fat grafting procedures and Micro Botox.

Micro Botox (also known as meso or intradermal Botox) has been in the marketplace for years, but has seen a recent surge in popularity. Physicians mix a diluted solution of Botox with hydrating substances and deliver small doses of this compound formula into the dermis of the face and neck. It is used mainly to treat fine lines and wrinkles.

Micro Botox is popular in APAC, noted Dr. Peng. "It can be used for many clinical conditions, such as treatment of the jawline, or to perform a 'mini lift' of the face."

Like Micro Botox, PRP has been around for years but has recently grown in popularity for a variety of indications, including facial rejuvenation.

"PRP has become more accepted as more studies have demonstrated its beneficial effects on a variety of conditions," stated Dr. Peng. "The combination of PRP with other cosmetic procedures, such as injectables and devices have shown synergistic effects." While not all physicians are enthusiastic about PRP, stem cell treatments, or other emerging approaches, many practitioners are including these regenerative medicine-type therapies in their liquid facelifts.

However, autologous fat grafting and the use of biofillers, which are becoming more common in North America and Europe, are less so in the APAC region. As reported by Dr. Supapannachart, "There is still a limitation of long-term viability of injected fat."

For plastic surgeons, fat grafting is mostly used for reconstructive surgery, noted Dr. Huang. "We do see some unpredictable results. In some people, even a few years following a fat grafting procedure, the injection can become irregular or unnatural looking. Fat grafting is becoming less important in the cosmetic / aesthetic field, but it is very useful in reconstructive surgery."

Despite the promise of emerging techniques, most aesthetic physicians stick with their tried and true products and methods, while applying best modern practices.

"In the past, we saw a fine line or a hollow space and filled it," stated Peter J. Damico, M.D., an aesthetic specialist in Fort Worth, Texas, U.S. "Today, you can apply strategic placement of fillers and that makes a big difference. It often allows you to use a lot less product, which is good for patients."

For instance, to address the specifics of the Asian face, Dr. Peng uses fillers for midface augmentation, area reshaping and lifting of lower face. "First, I usually do the injections for the foundation, which means on the lifting points and over some bone loss areas, followed by contouring or reshaping. In Asians, we address the forehead, eyebrows, glabella – the areas of the T-zone – including the nose, lips and chin. After that, we improve and beautify the nasolabial folds, the tear trough, etc."

Moving further down the face, one of the most challenging areas to treat is the jawline, expressed Dr. Peng. "I use neurotoxin injections to the masseter muscle, which causes the muscle to lose mass and helps to improve the shape of the lower face, as well as create a more defined, youthful and sharp jawline."

Below the jawline, the submental area has posed challenges for physicians, too. "The neck is a unique body area to treat," said Dr. Huang. "A combination of microneedling and HAs is still the best approach. Another option is to utilize PDO threads to enhance the skin. Also, you need to combine these with neurotoxin injections because you really need to relax the platysmal muscles in order to obtain a good result."

This is such a significant area of interest that physicians have created a treatment technique specifically focused on using Botox injections to recontour or redefine the jawline and relax the platysmal bands called The Nefertiti Lift.

Whether employing the latest facial injectables, collagen stimulating lifting threads or the newest autologous fillers and serums, the best protocol for using any product is to abide by standard foundations of safe medical practices, "starting with a skin examination and medical history,



Before and after dermal filler injections to the jawline, jowls, nasolabial folds, marionette folds and cheeks Photos courtesy of Alexander Rivkin, M.D.



Before and after Steven Weiner, M.D.'s signature reJAWvenation procedure, which consisted of a series of Restylane Lyft injections to add volume to the posterior aspect of the jaw, where bone was resorbed, as well as in the prejowl sulcus Photos courtesy of Steven F. Weiner, M.D.







Before and after a combination treatment regimen of Botox injections to the orehead, glabella, crow's feet and platysmal bands; Voluma SC in the cheeks and under the eyes; Belotero Balance and Kybella Photos courtesy of Peter J. Damico, M.D.

"Patients and physicians seek treatments with less downtime that also provide a natural result. People want to age gracefully. In the future, these procedures will become even more popular with the introduction of regenerative treatments."

The Facelift Revolution Physicians Achieve Surgical-Like Results with Minimally Invasive Techniques

assessing any limitations, and following with the selection of appropriate products and procedures," Dr. Supapannachart noted.

"Safe practices rely on observation of minute details and knowing how to prevent and correct unwanted results," she continued. "Mastering the basic anatomy and understanding the principles of the procedure are the best approaches to achieving effective, safe outcomes and minimizing adverse events."

When considering what protocols and best practices should be applied, Dr. Peng says it depends on the condition of the patient. "The four major things to evaluate are sagging of the skin, volume loss, areas of volume accumulation and skin quality," he noted.

A combination approach is best, noted Dr. Hau. "I usually start with neurotoxin to stabilize the muscle movement and contour a nice expression profile. With toxin I can also erase the excessive dynamic wrinkles," he began.

Following that, Dr. Hau will assess whether there is any significant volume loss that needs to be addressed. This involves injecting some mid-range HA-based fillers. "I prefer to use fillers that do not result in too much tissue swelling. I focus on areas that are sagging, which can be improved using vector pulling. Asian skin is thicker and has more fibrosis compared with Caucasians; therefore, they are more responsive to thread suspension surgery. Once I can build up the basic foundation of facial reshaping I will follow up with any other necessary modalities such as toxins and/or fillers."

According to Dr. Damico, the type and quality of injection tools are as important as technique. "I use a microcannula whenever I can, but sometimes I achieve a better result using a needle," he expressed.

"The microcannula is much safer and not as traumatic, with less bruising and swelling," he elaborated. "I don't inject into patients' temples with needles anymore. In addition, I will use a microcannula on the lateral cheeks to obtain a good result, but in other areas like the anterior cheek there are times when you have to use a needle."

While current developments are impressive, the future of minimally and non-invasive facial rejuvenation techniques will bring radical new approaches combining traditional methods, such as fillers and toxins, with regenerative medicine and biologics.

"The world trend is for a minimally invasive approach to rejuvenation," expressed Dr. Peng. "The newer, non-surgical technologies and techniques have, for instance, made it possible to lift drooping jowls, which almost always required a surgical approach in the past.

"Patients and physicians seek treatments with less downtime that also provide a natural result. People want to age gracefully. In the future, these procedures will become even more popular with the introduction of regenerative treatments, such as stem cells and growth factors. These will be the rising stars in the future," Dr. Peng concluded.

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UBM

truSculpt iD Offers Alternative to Cold-Based Body Contouring

By John Jesitus, Contributing Editor

For patients of all skin types and body shapes, truSculptTM iD by Cutera (Brisbane, California, U.S.) delivers safe, effective hands-free applicator treatments for fat pockets in just 20 minutes or less. Additionally, truSculpt iD offers an alternative to patients who are not candidates for, or did not have success with, coldassisted body contouring.

One key aspect of cold-based contouring devices is that they can only treat fat that can be pulled into a vacuum applicator. truSculpt iD sidesteps this problem because it does not use a vacuum. "You can treat fibrous or non-fibrous tissue all with the same device anywhere on the body," said Amy Forman Taub, M.D., a dermatologist in Chicago, Illinois, U.S.

Additionally, anecdotal evidence suggests that patients with more brown fat, and/or connective tissue, have better temperature regulation, which can result in these types of patients being able to maintain their body temperature more effectively. Therefore, treatments that rely purely on cooling to cause hypothermia in the fat layer may not reduce fat temperature as effectively.



Amy Forman Taub, M.D. Dermatologist Chicago, IL, USA

"There have been many reports suggesting that more fibrous fat seems softer than the usual 'hard stick of butter' appearance immediately after cold-based treatment because you're not getting the temperature down as much," Dr. Taub noted. "While this observation may impact the level of result or number of treatments needed, it is clear that this needs to be studied more closely before drawing any final conclusions in regard to efficacy and/or consistency."

During treatment with truSculpt iD, physicians strive to maintain a skin temperature of approximately 43.5° C, with a fat temperature of 45° to 47° C.

"In the tests that have been done, more often than not, Asian patients with more



28-year-old female before and 12 weeks after one treatment of the flanks with truSculpt Photos courtesy of Amy Forman Taub, M.D.

connective tissue end up with internal fat temperatures much closer to 47° C," Dr. Taub reported. "This may enhance the anecdotal impression that skin types IV through VI have more fibrous brown or brown and white types of fat, the latter of which may respond better to heat versus cold. We have been excited to see the consistency with truSculpt iD across all skin and body types so far. Our studies have shown an average of 24% reduction in fat thickness after a single session."

Small and medium-sized patients can have their abdomen and flanks done in a single session. Larger patients may require two back-to-back 15-minute sessions.

The truSculpt iD's electrodes adhere to a proprietary film that anchors the applicator and homogenizes energy delivery. "This allows us to use any orientation we like anywhere on the body simultaneously," Dr. Taub shared.

A transparent silicone wrap adds a secondary securing of the electrodes while limiting heat diffusion in the fat layer. "This allows us to get the fat to higher temperatures while keeping the skin at a lower temperature, thus improving patient comfort," Dr. Taub explained.

Setup takes only a few minutes, and truSculpt iD requires no post-procedure massage. "As far as operator time in the room, we can get these sessions done in 20 minutes. That is four times faster than cold-based treatment for the same sized area, due to both the larger range of the applicators and the ability to skip the massage."

Because truSculpt iD uses heat to induce lipolysis, treatment also improves skin quality. In Dr. Taub's experience, "the skin seems to be smoother, tighter and rejuvenated, which is an additional effect our patients appreciate."

Patients begin noticing improvements around six weeks post-treatment, with optimum results at 12 weeks. Most patients return around months three to six to treat additional body areas after they have seen the sustained reduction and results from their first treatment area.

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Non-Invasive SygmaLift Wins Multiple Awards Worldwide

By Kevin A. Wilson, Contributing Editor

Combining high-intensity focused ultrasound (HIFU) and 635 nm laser light to achieve remarkable non-invasive facial outcomes safely and comfortably, the growing reputation of SygmaLift from MedixSysteme (Ruggell, Liechtenstein) is leaping further forward. This exciting device is winning awards around the world, especially in Asia and Europe where cultural ideals and natural-looking outcomes are commonly sought.

With more than 36 years of experience, Kenneth Thean, M.D., founder and



Kenneth Thean, M.D. Founder and Medical Director ENSOUL Medical Clinic Singapore



Monica Jacob, M.D. Bodyz Wellness Mumbai, India



Before and after a course of SygmaLift treatments Photos courtesy of Kenneth Thean, M.D.

medical director of ENSOUL Medical Clinic (Singapore), is dedicated to providing safe, effective therapies with minimal pain and downtime, which is why he finds SygmaLift so appealing.

"HIFU treatment is traditionally associated with pain," he said, "However, SygmaLift is painless, so patients are very willing to return for additional treatments. I find that repeat treatments definitely yield better results than a single application. I can achieve significant skin lifting, improved tone, texture, elasticity and resilience, as well as reduced facial lines and wrinkles. My patients usually see results after their first treatment, with dramatic results after one session per week for three to six weeks."

Singapore Women's Weekly praised SygmaLift in its 2018 Spa Awards. The May 8, 2018 edition featured a periocular treatment featuring SygmaLift as the 'Best Eye Treatment'¹.

In Dr. Thean's experience, "The periorbital region is an important and often overlooked aesthetic area that should be addressed. SygmaLift's trifocal handpiece is very well designed to treat this area. I do this very often with excellent results."

The following week, the device was again featured in the online edition of *Singapore Women's Weekly*, winning 'Best Slimming Facial' for a double chin and neck therapy².



Furthermore, *Hello! Magazine* in Thailand, featured SygmaLift as part of the Editor's Choice for 'Most Trusted HIFU Clinic'³, and Kobieca Marka Roku, an organization dedicated to recognizing the highest quality products for the 21st century woman, awarded SygmaLift 'Polish Feminine Brand of the Year 2018.'

According to dermatologist and cosmetic surgeon Monica Jacob, M.D., of Bodyz Wellness in Mumbai, India, there's a good reason for these accolades.

"In addition to efficacy, the procedure's safety and comfort distinguish SygmaLift from other devices," she stated. "It brings something new with the combination therapy of HIFU and cold laser – two notable treatments available today. This is a promising alternative for my patients, many of whom who are not ready or are unwilling to undergo a surgical facelift. The goal in addressing skin rejuvenation and better contouring is to achieve natural-looking results in the least invasive way possible."

Dr. Thean was an early adopter of SygmaLift in Singapore, having tried the technology when SygmaLift was first introduced in the country.

"I was 60 years of age at that time, and after a series of three treatments I saw significant changes in my face," he shared. "I really liked my results, and I knew patients would, too. I was especially pleased because SygmaLift was painless. I was tired of balancing good HIFU results with associated pain, so SygmaLift was a welcome addition to my armamentarium."

Demand for SygmaLift is high, Dr. Thean reported. "The quick, painless and effective treatment sessions with SygmaLift result in a very high level of patient satisfaction. The treatment is so good and my SygmaLift is used so heavily that I had to invest in a second system to manage this high demand."

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Thriving Body Shaping Market Welcomes Industry Innovation



Paolo Bonan, M.D. Professor Dermatologist Villa Donatello Clinic Florence, Italy

Experiencing annual growth estimated at 10% to 16%, the current body shaping market features many different technologies to reduce fat, circumference, tighten skin and treat the appearance of cellulite.

Recently, radiofrequency (RF)-based devices have become a primary technology for body contouring due to the versatility, safety profile and fast learning curve. However, a downside to RF has been the level of pain associated with procedures, and the post-treatment redness and swelling experienced by some patients.

Seeing an opportunity for improvement, DEKA (Florence, Italy) has launched Onda, a unique, controlled-microwave delivery platform (patent-pending) for body shaping.

Onda uses a 2.45 GHz microwave energy (Coolwaves[™]) that has proven highly selective for subdermal fat, while preserving the preceding dermo-epidermal layers above. This system's unique technology addresses patient discomfort and downtime, and consistently reduces treatment time.

According to professor Paolo Bonan, M.D., a dermatologist at Villa Donatello Clinic in Florence, Italy, "The biggest advantage with Onda is the ability to treat all body shaping conditions, including cellulite, skin laxity and fat deposits at different depths of action. Patients are extremely happy with both the results obtained and the minimally invasive approach to treatment. At this time, Onda is the top requested treatment by many of our patients for body shaping."

Nicola Zerbinati, M.D.

Professor

Dermatologist

CMP

Pavia, Italy

Microwave technology has a history in clinical applications as it has been widely used in many branches of medicine, including oncology. Onda's patentpending handpiece technology allows for full control of delivery of the microwaves into the body with no overheating to superficial layers, thus avoiding both irritation and burns.

"This is a huge practical advantage vs. RF-based devices," said professor Nicola Zerbinati, M.D., a dermatologist at CMP in Pavia, Italy.

"Onda is a device that, for the first time, is able to produce a focalized action just where it is needed. This comes from a deep knowledge of the characteristics of the skin layers, as well as the behavior of these layers when treated by very high frequencies, as proven by all electronic microscopy histological reports," he continued.

Both patients and operators report that the Onda procedure is pleasant and extremely comfortable, as well as quick and easy to perform. The swift and promising results, visible immediately after the first session, joined with the high degree of comfort and ease of use, make Onda the preferred choice for many body shaping specialists.



Before and 60 days after treatment with Onda Photos courtesy of Paolo Bonan, M.D. and Federica Coli





Before and 60 days after treatment with Onda Photos courtesy of Nicola Zerbinati, M.D. and Edoardo D'Este, M.D.



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Founded in 1995, Eunsung Global provides a full range of medical laser devices for skin treatments and body contouring. Eunsung Global products include Cool Shaping, 3-Max, Magicpot, PowerShape, Megason, Spring and Jet Clear, which are marketed in more than 50 countries. Eunsung Global also provides innovative products and services to over 100 partners worldwide. Through our expansive international network we are able to offer our clients more convenient access to our products, solutions and services.

FILLMED Laboratoires

2-4 rue de Lisbonne Paris, France 75008 +33 1 42 93 94 00 telephone www.fillmed.com

FILLMED BY FILORGA is a leading brand with an objective of 360° skin rejuvenation via dermal fillers, biorevitalization, peels, and cosmetics. The French laboratory FILORGA was founded in 1978 and will become FILLMED in 2019 to reinforce its medical vocation. The company develops high-performance anti-aging products: ART FILLER dermal fillers, NCTF biorevitalizion solutions, peels and SKIN PERFUSION cosmetics for a 360° management of skin aging. Beauty is an art, we made it a science.

Fotona d.o.o.

Stegne 7

Ljubljana 1000 Slovenia

+386 1 500 91 26 telephone +386 1 500 92 05 facsimile www.fotona.com

Fotona develops and manufacturers high-performance, quality-made laser systems. Our wide range of laser systems purvey quality, reliability, safety and cutting edge innovation in treatment speed and efficiency. Our global network of representatives and reference medical centers guarantees exceptional customer support, as well as technical and clinical training.

Hironic Co., Ltd.

19F U-Tower, 767, Sinsu-ro, Suji-gu, Yongin-si Gyeonggi-do, 16827, South Korea +82 31 525 7400 telephone +82 505 360 4201 facsimile www.hironic.com

Established in 2006, Hironic is a KOSDAQ-listed company that manufactures innovative medical aesthetic laser and energy-based devices for dermatology and plastic surgery clinics. Hironic provides a diverse range of products including Doublo[™], a skin lifting device utilizing high-intensity focused ultrasound (HIFU) technology for skin rejuvenation; Micool[™], which permanently destroys fat cells using cryo fat reduction technology for body shaping; SLIMUS[™], which also eliminates subcutaneous fat cells using 1060 nm diode laser and vibration via laser vibration alliance technology (LVAT); MIRACLEAR[™] and A-Fit[™] for acne treatment; VeraShape[™] for obesity care; ByeLIPO[™] for fat reduction and cellulite removal; Q-Fit[™] for pigmented lesion treatment; and Easymo Graft[™], a non-invasive hair transplant device. The Hironic brand is recognized, valued and trusted globally.

Jeisys Medical, Inc.

307, Daeryung Techno Town 8-cha Gasan-dong, Geumcheon-gu Seoul, South Korea 153-775 +82 2 2603 6417 telephone +82 2 2603 6447 facsimile www.jeisys.com

Jeisys Medical, Inc., produces medical devices featuring IPL / RF microneedling, HIFU, fractional CO_2 / Q-switched Nd:YAG laser, diode laser, etc., that are reliable and better quality for dermatologists, plastic surgeons and other aesthetic physicians, based on large investment in research & development and valuable experience.

Lumenis

Unit 2602, Miramar Tower, 132 Nathan Road TST, Kowloon, Hong Kong +852 2174 2800 telephone +852 2722 5151 facsimile www.aesthetic.lumenis.com

Lumenis, one of the world's largest medical laser companies, is a global developer, manufacturer and distributor of laser and light-based devices for surgical, ophthalmic and aesthetic applications, with more than 800 employees worldwide. Lumenis has 270 registered patents, over 260 FDA clearances, an installed base of over 30,000 systems and a presence in over 100 countries. Lumenis endeavors to bring the finest state-of-the-art technology products to the market, fulfilling the highest standards of excellence, quality and reliability, delivering premium value and service to its customers.

Lutronic

219 Sowon-ro, Deogyang-gu

Goyang-si, Gyeonggi-do, Republic of Korea 10534 +82 31 908 3440 telephone +82 31 907 3440 facsimile www.lutronic.com

At Lutronic our passion is to improve the lives of physicians and their patients by developing innovative solutions that are intuitive, versatile, efficacious and beneficial to society. We are committed to investing in R&D to ensure our systems remain innovative, while maintaining reasonable pricing.

MedixSysteme

Industriestrasse 56 Ruggell, Liechtenstein 9491 +423 373 0440 telephone www.medixsysteme.li

MedixSysteme is a leading European manufacturer of medical equipment, ISO 13485 certified. Based in a high-technology park, we offer products and services to the medical aesthetic field for non-invasive applications. MedixSysteme is one of the first to introduce fractional focal ultrasound, HIFUs emitted in lines, as well as intensive cold laser – 635 nm – for fat treatment and rejuvenation.

Merz Asia Pacific, Pte., Ltd.

21 Biopolis #06-03 North Tower Nucleos Singapore 138567 +65 6664 8633 telephone +65 6664 8634 facsimile www.merzaesthetics.com

Merz Aesthetics brings a century of healthcare expertise, cutting edge products and unparalleled service to the field of aesthetic dermatology. Merz has a long history in skincare treatment. Company founder Friedrich Merz researched the effects of revitalizing skincare products, and the company introduced the world's first anti-wrinkle treatment in 1953. Today, family-owned Merz created Merz Aesthetics to meet the growing needs of patients and physicians through state-of-the-art science.

Quanta System SpA

Via Acquedotto, 109 Samarate, VA 21017 Italy +39 0331 376797 telephone + 39 0331 367815 facsimile quanta@quantasystem.com www.quantasystem.com

Quanta System is a 100% Italian company offering innovative laser systems for surgery, aesthetics and art conservation to the global market since 1985. The company carries out the entire process of research, development and production of lasers used worldwide in its headquarters in Varese (Samarate, Italy). Quanta System is part of El.En SpA Group, Italian parent company of a high-tech industrial group listed on the STAR segment of the Italian Stock Exchange.

Sciton, Inc.

925 Commercial Street Palo Alto, CA 94303 USA +1 888 646 6999 telephone +1 650 493 9146 facsimile www.sciton.com

Sciton is committed to providing best-in-class laser and light solutions for medical professionals who want superior durability, performance and value. Sciton offers superior medical devices for laser-assisted lipolysis, fractional and full-coverage skin resurfacing, hair removal, phototherapy, wrinkle reduction, treatment of vascular and pigmented lesions, scar reduction and laser vaginal therapy, all on an expandable platform. The new Halo[™] laser is a hybrid fractional laser, combining ablative and nonablative wavelengths for epidermal renewal and deep dermal rejuvenation with non-ablative downtime.

Syneron Candela

Room 2502-03 25'F Hopewell Center, 183 Queen's Road East Wan Chai, Hong Kong +852 2543 4326 telephone +852 2543 4327 facsimile www.syneron-candela.com

Syneron Candela is a leading global non-surgical aesthetic device company with a comprehensive product portfolio and a global distribution footprint. The company provides advanced solutions for a broad range of medical aesthetic applications including pigment and vascular removal, body contouring, hair removal, wrinkle reduction, tattoo removal, women's intimate health and cellulite.

Thermi, LLC

3131 West Royal Lane Irving, TX 75063 USA +1 866 981 5017 telephone +1 214 279 0101 facsimile www.thermi.com

Thermi, an Almirall company, is a global leader in advanced temperaturecontrolled radiofrequency (RF) technology. Thermi systems offer versatile modalities and safely deliver rapid results through controlled heating using RF to impact positive tissue change and naturally stimulate collagen. Clinicians use Thermi technology to help address common signs of aging and/or weight loss, including fine lines, post-baby body, cellulite, loose skin and intimate tissue laxity; and empower people to take control over their skin, body and intimate life.

Venus Concept, Ltd.

255 Consumers Road, Suite 100 Toronto, ON, M2J 1R4 Canada +1 888 907 0115 telephone +1 855 907 0115 facsimile www.venusconcept.com

Venus Concept is a global aesthetic device manufacturer that develops effective, pain-free technologies for the body and face, and offers them through our industry-changing, low risk, subscription-based business model. Our brands include the top rated Venus Freeze[™], Venus Legacy[™] featuring two 4D applicators and Venus Viva[™], the latest nanofractional RF technology with SmartScan[™]. Venus Versa provides a complete package of solutions to address the most in-demand aesthetic treatments.

Zimmer MedizinSysteme GmbH

Junkersstraße 9

Neu-Ulm, Germany 89231

+49 731 97 61 291 telephone +49 731 97 61 299 facsimile www.zimmer-aesthetics.com

Based on hyaluronic acid, the ZFill product line is suitable for all established indications of wrinkle injections. In 2016 ZLipo, a brand new system for CryoContouring was launched. By combining Z Lipo and Z Wave PRO (radial shockwaves) Zimmer MedizinSysteme offers the perfect combination treatment for significantly improved fat reduction.

EMERGING AESTHETIC TECHNOLOGIES COMPARISON CHART

Supplier	Product	Technology	Applications
Asclepion Laser Technologies	Juliet	MCL31 Dermablate 2940 nm Er:YAG	Vaginal atrophy and mild stress urinary incontinence.
Cutera	truSculpt 3D	Monopolar RF	Body sculpting.
Cynosure, Inc.	PicoSure	Alexandrite; 755 nm and 532 nm, Picosecond Pulses	Skin rejuvenation, tattoo removal and pigmented lesions.
DEKA	MonaLisa Touch ONDA	SmartXide ² Fractional CO ₂ Laser with PSD and Hi-Scan V ² LR scanning system SmartXide Touch Fractional CO ₂ Laser with PSD and Hi-Scan V ² LR scanning system 2.45 GHz Microwave-Controlled Delivery Platform	Feminine rejuvenation: restore natural physiological and mechanical mucosa conditions; improve vaginal lubrication, vulvar itching and painful intercourse. Open to colposcopy and laparoscopy attachments. Feminine rejuvenation: restore natural physiological and mechanical mucosa conditions; improve vaginal lubrication, vulvar itching and painful intercourse. Adiposities, cellulite and skin laxity.
Fotona d.o.o.	IntimaLase	2940 nm Er:YAG with SmoothMode	Feminine rejuvenation - tightening of internal vaginal tissues.
HIRONIC	PLASONIC SLIMUS EasyMo Graft Hair Transplant Device Ultra Vera	Plasma and ultrasound 1060 nm Laser Vibration Alliance Technology (LVAT technology) Automated Follicular Unit Extraction (FUE) High Intensity Focused Ultrasound (HIFU)	Solution-delivery technology. Skin rejuvenation, moisturizing, sterilization, increased absorption, toning and maximized drug delivery. Non-invasive lipolysis device for various parts of the body such as the abdomen, back, arms and thighs. Supports extraction and implantation processes with automated mechanical technologies: pneumatic for extraction and implantation, rotation power for extraction, and positive pressure for implantation. Equipped with a low-temperature storage system (1° C to 5° C) to improve the survival rate of follicular units. Non-invasive vaginal tightening, improves vaginal dryness and urinary incontinence. Painless, 20-minute treatment. No downtime or bleeding.
Lutronic	Lasemd Pico+4 Petit Lady	Thulium Fractional Laser; 1927 nm Picosecond Nd:YAG (1064 nm, 532 nm, 595 nm and 660 nm); 750 ps, 2 ns 2940 nm Er:YAG with Dual Mode 10,600 nm CO_2 Fractional	Delivery of cosmeceutical ampoules: Vitamin C, Vitamin A, Tranexamic Acid, CK (Human blood cell conditioned Media + KGF) and RS (Resveratrol). Pigmented lesions, tattoos. Vaginal tightening. Urinary incontinence. Vestibule and introitus tightening.
Quanta System	Discovery Pico Discovery Pico Plus Discovery Pico Start	Picosecond, Q-Switched (not for Discovery Pico Start) and Photo-Thermal 1064 nm Nd:YAG, Picosecond, Q-Switched (not for Discovery Pico Start) 532 nm Nd:YAG and Q-Switched 694 nm Ruby (only for Discovery Pico Plus). Up to 1.8 GW peak power. Pico- Boost Technology. OptiBeam II for fractional, square and round spots.	Benign pigmented lesions, skin resurfacing, acne scars, skin rejuvenation and tattoo removal.
Sciton	diVa	1470 nm / 2940 nm Hybrid Fractional Laser (Ablative and Non-Ablative)	Improvement of vaginal tissue. Independently configurable delivery of both ablation and coagu- lation. High Precision Automation (HPA) Technology allows configurable treatment parameters with automatic energy delivery. Strengthened Quartz Dilator (SQD) optimized energy delivery by dilating tissue and providing 360° of laser energy.
Syneron Candela	PicoWay PicoWay Resolve CO ₂ RE Intima	532 nm, 785 nm, 1064 nm, Picoseconds 532 nm, 1064 nm Fractional Handpieces CO ₂	Tattoo removal. Skin rejuvenation, pigmentation and toning. Women's wellness and vaginal rejuvenation.
Thermi	ThermiRF ThermiVa Thermi250	Temperature-Controlled RF Temperature-Controlled RF Temperature-Controlled RF	Offers a myriad of soft tissue applications. Heats tissue in the vulvovaginal area. Temporary reduction in the appearance of cellulite.
Ulthera, Inc., a division of Merz, Inc.	The Ulthera System Cellfina System	Micro-Focused Ultrasound with Visualization Tissue Stabilized-Guided Subcision (TS-GS)	Neck, chin and brow lifting; chest wrinkles. Long-term reduction of cellulite, up to two years by precise release of targeted structural tissue (fibrous septae).
Zimmer MedizinSystems	ZWave ZCryo	Ballistic Radial Pulse Cold Air (up to -22° F)	Temporary reduction in the appearance of cellulite. Skin cooling pre, intra and post laser treatments without interfering with the laser beam. Minimizes pain and thermal injury during laser and dermatological treatments. Temporary topical anesthetic relief for injections. Can be used for hair removal, tattoo removal and skin rejuvenation procedures.

 $Note: Data \ subject \ to \ change; \ please \ refer \ to \ Company \ Directory \ for \ supplier \ contact \ information.$

DERMAL FILLER PRODUCT COMPARISON CHART

Supplier	Product(s)	Key Component	Description	Regulatory Status
Allergan	CosmoDerm CosmoPlast HydraFill – Softline HydraFill – Softline Max Surgiderm 18 Surgiderm 30 Surgiderm 24XP Surgiderm 30XP Juvéderm UItra Smile Juvéderm ULTRA 2 Juvéderm ULTRA 3 Juvéderm ULTRA 4 Juvéderm VOLUMA Juvéderm HYDRATE	Purified Human-based Collagen plus Lidocaine Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid plus Iidocaine Non-Animal Hyaluronic Acid plus Lidocaine Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid Non-Animal Hyaluronic Acid	Purified human-based collagen 35 mg/mL. Purified human-based collagen 35 mg/mL, cross-linked with glutaraldehyde. *All collagen products contain 0.3% lidocaine. Non-animal, cross-linked cohesive hyaluronic acid 24 mg/g. Non-animal, cross-linked cohesive hyaluronic acid 24 mg/g. 13.5 mg/g plus mannitol 0.9%; 1 x 1 mL syringe.	Worldwide. Worldwide. CE marked. CE marked.
Anteis S.A. (part of Merz Pharma GmbH & Co. KGaA)	Belotero Hydro – 18 mg/mL* Belotero Soft – 20 mg/mL Belotero Balance – 22.5 mg/mL Belotero Intense – 25.5 mg/mL Belotero Volume – 26 mg/mL *not cross-linked	Hyaluronic Acid	Monophasic hyaluronic acid (non-animal origin) with CPM (Cohesive Polydensified Matrix) – manufactured using a patented dynamic cross-linking technology (DCLT).	CE marked. U.S. approval pending. CE marked. U.S. approval pending. CE marked. FDA approved. CE marked. U.S. approval pending. CE marked. U.S. approval pending.
Contura International A/S	Aquamid Aquamid Reconstruction	Polyacrylamide Gel (PAAG)	2.5% cross-linked hydrophilic PAAG and 97.5% non-pyrogenic water. Homogenous gel without particles for long lasting results in aesthetic and reconstructive indications. 1 x 1 mL syringe.	CE-marked, sold in more than 30 countries worldwide.
Galderma	EMERVEL Restylane Touch Restylane Perlane Restylane Perlane Restylane Sub-Q Restylane Lipp Restylane Vital Macrolane VRF30 Macrolane VRF20	Hyaluronic Acid NASHA Non-Animal Hyaluronic Acid	20 mg/mL. NASHA gel – a non-animal hyaluronic acid, stabilized with BDDE. The differentiation is in the size of the NASHA particles, to assure a tissue-tailored range of products. Restylane – 100,000 particles per mL. Restylane Touch – 500,000 particles per mL. Restylane Perlane – 10,000 particles per mL. Restylane Perlane – 10,000 particles per mL. Concentration 20 mg/mL.	CE medical marked 0459. Restylane is approved worldwide with the exception of Japan. Restylane Perlane, Restylane Sub-Q and Restylane Touch are approved world- wide with the exception of Japan and U.S. U.S. approval in progress. Restylane Lipp approved in Europe.
HIRONIC	JUVINA – Light JUVINA – Moderate JUVINA – Deep JUVINA – Deep Plus JUVINA – Light Comfort JUVINA – Moderate Comfort JUVINA – Deep Comfort JUVINA – Deep Plus Comfort	Non-animal, cross-linked cohesive Hyaluronic Acid Non-animal, cross-linked cohesive Hyaluronic Acid Non-animal, cross-linked cohesive Hyaluronic Acid Non-animal, cross-linked cohesive Hyaluronic Acid plus Lidocaine Non-animal, cross-linked cohesive Hyaluronic Acid plus Lidocaine Non-animal, cross-linked cohesive Hyaluronic Acid plus Lidocaine Non-animal, cross-linked cohesive Hyaluronic Acid plus Lidocaine Non-animal, cross-linked cohesive Hyaluronic Acid plus Lidocaine	 20 mg/mL for superficial lines, worry lines, crows' feet and neck wrinkles. 20 mg/mL for deep nasolabial folds, facial contouring and augmentation. 20 mg/mL for severely deep lines, facial contouring and augmentation, and chin. 20 mg/mL for forehead, chin and nose. 20 mg/mL plus 0.3% lidocaine for superficial lines, worry lines, crows' feet and neck wrinkles. 20 mg/mL plus 0.3% lidocaine for deep nasolabial folds, facial contouring and augmentation. 20 mg/mL plus 0.3% lidocaine for superficial lines, known and augmentation. 20 mg/mL plus 0.3% lidocaine for severely deep lines, facial contouring and augmentation. 20 mg/mL plus 0.3% lidocaine for severely deep lines, facial contouring and augmentation, and chin. 20 mg/mL plus 0.3% lidocaine for forehead, chin and nose. 	CE marked. CE marked. CE marked. CE marked. CE marked. CE marked. CE marked.
Merz North America, Inc. (part of Merz Pharma GmbH & Co. KGaA)	Radiesse Radiesse Lidocaine	CaHA CMC	The principal component is synthetic calcium hydroxylapa- tite (CaHA) suspended in an aqueous sodium carboxymeth- ylcellulose gel matrix consisting primarily of water (sterile water for injection) and glycerin. Radiesse Lidocaine is enhanced with 0.3% integral lidocaine hydrochloride.	FDA approved. CE marked. FDA approved. CE marked.
mesoestetic	mesohyal X-DNA mesohyal NCTC mesohyal HYALURONIC mesohyal VITAMIN C mesohyal ORGANIC SILICON	Non-cross linked hyaluronic acid + Sodium deoxyribonucleotide Non-cross linked hyaluronic acid + Biorevitalizing cocktail Non-cross linked hyaluronic acid Non-cross linked hyal- uronic acid + vitamin C Non-crosslinked hyal- uronic acid + silicon	Cell membrane protection. Intensive cell biorevitalization. Moisturizing and rejuvenation of the skin. Antioxidant and brightening effects. Skin tissue regeneration and restructuring.	CE marked. CE marked. CE marked. CE marked. CE marked.

DERMAL FILLER PRODUCT COMPARISON CHART

Supplier	Product(s)	Key Component	Description	Regulatory Status
Prollenium Medical	Revanesse Pure	Non-cross linked, non-	14 mg/mL hyaluronic acid for bio-revitalization.	CE marked. Health Canada.
Technologies, Inc.	Revanesse Revanesse Ultra	animal Hyaluronic Acid Non-Animal Hyaluronic Acid High-viscosity, non-animal	25 mg/mL stabilized hyaluronic acid. 25 mg/mL stabilized hyaluronic acid.	CE marked. Health Canada. CE marked. Health Canada.
	Revanesse Kiss Revanesse Contour	Non-Animal Hyaluronic Acid High-viscosity, non-	25 mg/mL stabilized hyaluronic acid. 25 mg/mL stabilized hyaluronic acid.	CE marked. Health Canada. Health Canada.
	ReDexis	Non-Animal Hyaluronic Acid	25 mg/mL stabilized hyaluronic acid, 25 mg/mL dextranomer	Health Canada.
	Revanesse, Revanesse Ultra, Revanesse Kiss and Revanesse Contour with Lidocaine	Non-Animal Hyaluronic Acid plus Lidocaine	25 mg/mL stabilized hyaluronic acid, 0.3% lidocaine.	Health Canada.
S & V Technologies AG	amalian balance	Non-Animal Hyaluronic Acid	12 mg/mL HA, non cross-linked hyaluronic acid gel for skin	CE marked.
	amalian smoothline		8 mg/mL HA, cross-linked monophasic gel for orbital frame	
	amalian LT I active		16 mg/mL HA, cross-linked monophasic gel for smoothing	
	amalian LT II intense		24 mg/mL HA, cross-linked monophasic gel for filling moderate to deep wrinkles and folds	
	amalian expert III		24 mg/mL HA, cross-linked bi-phasic gel HA for restoring facial volume and contours.	
	amalian SF fine		16 mg/mL HA, cross-linked soft monophasic gel for smoothing of fine lines.	
	amalian SF medium		20 mg/mL HA, cross-linked soft monophasic gel for smoothing of fine to moderate wrinkles.	
	amalian SF advanced		24 mg/mL HA, cross-linked soft monophasic gel for filling moderate to deep wrinkles and folds.	
Sinclair Pharmaceuticals	Perfectha FineLines	Biodegradable cross-	20 mg/mL syringe of hyaluronic acid gel; variants available for	CE marked. KFDA. Class III Medical
Ltd.	Perfectha Complement	linked Hyaluronic Acid of non-animal origin	filling superficial, moderate and deep wrinkles, non-surgical rhinoplasty, lip augmentation and contouring, facial contouring (and because the superficience of the superficien	Device. CE marked. KFDA.
	Perfectha Deep		loss. Perfectha SubSkin is also used for hand rejuvenation.	CE marked, KFDA. CE marked, KFDA.
	3 x 1 mL	CMC Belycoprolectore	Family of products with immediate volumining effects and	CE marked, KFDA.
	Elianse 2 X 1 mic (-5, -14, -L, -L)	(PCL)	subsequent biostimulation with unique STAT Technology:	International regulatory approvals
			Tunable longevity for choice and versatility and proven	Australia, Iran, Mexico, Russia, South
			available in four distinct formulations for results lasting from one to four years.*	Norou, or it.
			*Expected longevity in vivo based on extrapolation of clinical	
			data from S and M and accepted degradation behavior.	
Teoxane	Teosyal Ultimate	Cross-Linked Hyaluronic	Non-animal, cross-linked hyaluronic acid 22 mg/g.	CE marked.
	Teosyal Ultra Deep	Cross-Linked Hyaluronic	Non-animal, cross-linked hyaluronic acid 25 mg/g.	CE marked.
	Teosyal Kiss	Cross-Linked Hyaluronic	Same as above.	CE marked.
	Teosyal Deep Lines	Cross-Linked Hyaluronic	Same as above.	CE marked.
	Teosyal Touch Up	Cross-Linked Hyaluronic Acid	Same as above.	CE marked.
	Teosyal Global Action	Cross-Linked Hyaluronic Acid	Same as above.	CE marked.
	Teosyal First Lines	Cross-Linked Hyaluronic Acid	Non-animal, cross-linked hyaluronic acid 20 mg/g.	CE marked.
	Teosyal Meso	Non Cross-Linked Hyaluronic Acid	Non-animal, cross-linked hyaluronic acid 15 mg/g.	CE marked.
	Teosyal PureSense Ultimate	Cross-Linked Hyaluronic Acid plus Lidocaine	Non-animal, cross-linked hyaluronic acid 22 mg/g plus 0.3% lidocaine.	CE marked.
	Teosyal PureSense Ultra Deep	Cross-Linked Hyaluronic Acid plus Lidocaine	Non-animal, cross-linked hyaluronic acid 25 mg/g plus 0.3% lidocaine.	CE marked.
	Teopyal PureSense Kiss	Acid plus Lidocaine	Same as above.	CE marked.
	Toosyal PureSense Clobal Action	Acid plus Lidocaine	Same as above.	CE marked
	Teosval PureSansa Firet Lines	Acid plus Lidocaine	Non-animal cross-linked hyaluronic acid 20 mg/g plus 0.2%	CE marked
	Teosval PureSense Redensity I	Acid plus Lidocaine	lidocaine. Non-animal, cross-linked hyaluronic acid 20 mg/g plus 0.3%	CE marked
	1000yun arecense nedelisity (Hyaluronic Acid plus	lidocaine plus eight amino acids, three antioxidants, two minerals and one vitamin	on manon.
	Teosval PureSense Redensity II	Restructuring Complex Semi Cross-Linked	Same as above.	CE marked.
		Hyaluronic Acid plus Lidocaine plus Dermo		
		Restructuring Complex		
Zimmer MedizinSysteme	ZFill refresh ²	Non-Animal Hyaluronic Acid	Hyaluronic acid gel with glycerin. For mesotherapy, lasting	CE marked.
Germany	ZFill contour ²		Hyaluronic acid gel implant. For correction of superficial and	CE marked.
	7Fill deep ²		with BDDE.	CF marked
	Zinii deep		wrinkles, sunken areas of skin, facial contours and increased	OL Martou.
			V MATTY'	

HAIR REMOVAL COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
-					
	Looor / IPI	1064 pm / 690 1100 pm	200 1/om ² / up to 25	Lip to 200 mg / up	
xeo + prowave	Laser / IFL	1004 11117 080 - 1100 1111	J/cm ²	to 90 ms	
excel HR	Laser	755 nm, 1064 nm	Up to 300 J/cm ²	Up to 300 ms	
DEKA					
Synchro HP Excellium	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	LP: 0.2 – 10 ms; 2 – 50 ms / 3 – 8 ms	180 W Nd:YAG laser module with up to 27,000 W pulse peak power. Three delivery pulse designs; 11 application handpieces (22 and 24 mm available); and opt. five filter IPL with enhanced vascular capabilities - 500 G. Auto spot size recognition system. Top hat technology; contact or opt. external cooling connections: patient database and protocols. No disposables
MiniSilk FT	Pulsed Light System	500, 520, 550, 600, 650 IR Filter	2 – 2.5 J/cm ²	3 – 8 ms (1–3 pulses)	Interchangeable snap-on filters; integrated skin contact cooling; lamp water cooling; transportable. 3.1 cm ² or 6.2 cm ² spot area available. IR filter available for greater skin tightening.
Synchro REPLA:Y	Multi-Functional Platform	755 nm Alexandrite / 1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	63.5 J (max.) – 125 W (max.) / LP: 120 J – 180 W (max.); SP 120 J (max.) / 160 J (max.) energy per pulse	2 – 50 ms (single pulse); 2 – 40 ms (double pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms / 3 – 8 ms	Alexandrite emission: 5 Hz and high power (125 W) system. Nd:YAG: 180 W laser module with up to 27,000 W pulse peak power. Three delivery pulse designs and adjustment feature for Alexandrite and Nd:YAG. Twelve application handpieces to 24 mm. Auto spot size recognition system. Top hat technology; contact or opt. external cooling connections. Patient database and protocols; opt. five filter IPL with enhanced vascular
Synchro FT	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	700 J/cm ² (max.) SP and LP / 160 J (max.) energy per pulse	LP: 2 – 30 ms; SP: 0.8 - 10 ms (1–3 pulses) / 3 – 8 ms	Capabilities - 500 G. No disposables. Nd:YAG and IPL platform with five different application specific handpieces. Top hat technology and auto spot size recognition system; contact or opt. external cooling connec- tions; delivery pulse settings available; patient database and protocols; opt. five filters; 30,000 shots guaranteed IPL. No disposables.
Motus LD	High Power Diode Laser	810 nm ± 10 nm	Up to 60 J	Up to 46 ms	Transportable device with optional chart. Integrated skin contact cooling; 10x10 mm ² spot area available with up to 15 Hz rep. rate. Motion functionality for virtually painless hair removal.
Motus AX	High Frequency Alexandrite Laser	755 nm	Up to 30 J	2 – 50 ms (single pulse); 4 – 80 ms (twin pulse)	Transportable device. Integrated Peltier skin contact cooling; 20 mm spot area available with up to 10 Hz rep. rate. DEKA's proprietary new Môvéo Technology functionality enables painless and smokless bair reput
Motus AY	High Frequency Alexandrite / Nd:YAG Laser	755 nm / 1064 nm	Up to 30 J / up to 60 J	2 – 50 ms (single pulse); 4 – 80 ms (twin pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms	Transportable device. Integrated Peltier skin contact cooling; up to 20 mm spot area with up to 10 Hz rep. rate available on both Nd:YAG and Alex wavelengths. DEKA's proprietary new Mòvèo Technology functionality enables painless and smok- less hair removal. Additional standard handpiece for vascular, skin rejuvenation and other dermatology indications.
Eunsung Global Corp.					
Clearlight LD808 Clearlight	Diode Intense Pulsed Light	808 nm 430 – 1200 nm	1 – 120 J/cm ² 3 – 35 J/cm ²	100 ms 5 – 25 ms	808 nm diode laser and large, 14 x 14 mm spot size. Differentiated handpiece with 15 x 40 mm wide spot size.
Fotona d.o.o.					
SP Dynamis	Nd:YAG / Er:YAG	1064 nm	Up to 600 J/cm ²	0.1 – 1.6 ms	S-11: Nd:YAG scanner: 42 cm ² Tx area. Nd:YAG handpieces:
StarWalker	Nd:YAG Q-Switched / Long Pulse	1064 nm	Up to 160 J/cm ²	250 μs / VERSA3: 15 – 50 ms	Handpieces: 2 - 8 mm spot sizes.
Jeisys					
cellec	IPL	420 – 950 nm	Up to 60 J/cm ²	1 – 60 ms	Eight interchangeable filters: 420S (420 – 600 nm), 530S (530 – 600 nm), 420 nm, 530 nm, 560 nm, 640 nm, 700 nm, 800 nm.
SmoothCool	IPL	560 – 950 nm / 700 – 950 nm	Up to 65 J/cm ²	1 – 60 ms	(700 – 950 nm) handpiece: 34×8 mm spot size; 700 (700 – 950 nm) large handpiece: 50×10 mm spot size; 700 (700 – 950 nm) small handpiece: 34×8 mm spot size. Contact cooling (below 0° C).
Lumenis					
LightSheer Duet with LightSheer ET and LightSheer HS LightSheer ET LightSheer XC IPL Quantum SR or DL with HR	Diode Diode Diode Intense Pulsed Light	800 nm 800 nm 800 nm 695 – 1200 nm	LightSheer ET: 10 – 100 J/cm ² LightSheer HS: 4.5 – 12 J/cm ² 10 – 100 J/cm ² 10 – 100 J/cm ² 20 – 45 J/cm ²	LightSheer ET: 5 – 400 ms LightSheer HS: 30 – 400 ms 5 – 400 ms 5 – 400 ms 6 – 18 ms	High speed LightSheer HS handpiece: 22 x 35 mm spot with vacuum assist technology, field replaceable handpiece combined with LightSheer ET: 9 x 9 mm spot with ChillTip, field replaceable handpiece. ChillTip handpiece. 9 x 9 mm spot. ChillTip handpiece. 12 x 12 mm spot. Upgrade for IPL Quantum DL or SR, spot size 34 x 8 mm, antioen2755 1200 mm hand
upgrade					טסטמו 100 - 1200 mm nead.

HAIR REMOVAL COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Lumenis - continued					
Lumenis - continued Lumenis One Elora M22	Intense Pulsed Light / Nd:YAG / LightSheer Diode IPL Modular / Plug and Play / IPL	515 – 1200 nm / 1064 nm / 800 nm 570 – 1200 nm 515 – 1200 nm	10 – 40 J/cm ² / 10 – 225 J/cm ² / 10 – 100 J/cm ² Up to 22 J/cm ² 10 – 35 J/cm ²	3 – 100 ms / 2 – 20 ms / 5 – 400 ms N/A 4 – 20 ms	Multi-technology, multi-application platform. Optimized presets and comprehensive patient database. Spot sizes IPL: 15 x 35 mm and 8 x 15 mm, Nd:YAG: 3, 6, 9 mm, LightSheer: 9 x 9 mm. Spot size of 20 x 30 mm crystal, 33 Hz. Optimum Pulse Technology (OPT), multiple sequential pulsing, continuous contact cooling with SapphireCool light guides: 15 x 35 mm, 8 x 15 mm. ExpertFilters: 515, 560, 590, 615, 640 and 695 nm.
Lutronic					
SOLARI	IPL	420 – 950 nm	35 J/cm ² (at 510 nm	5 – 300 ms	Cut-off filters.
	Diode	805 pm	filter)	5 - 400 ms	Field replaceable bandpieces with chilled compression tip:
Advantage Power+	Diode	805 nm	5 – 100 J/cm ²	5 – 400 ms	D1-800 (10 x 10 mm); D3-800 (10 x 30 mm). Cart. Field replaceable handpieces with chilled compression tip: D1-800 (10 x 10 mm); D3-800 (10 x 30 mm). D1-1064 (10 x
CLARITY	Long Pulsed Alexandrite / Nd:YAG Laser	755 nm / 1064 nm	Up to 600 J/cm ²	0.1 – 300 ms	10mm). Cart. Nine spot sizes including 2, 3, 5, 8, 10, 12, 15, 18, 20 mm.
Quanta System					
Q-Plus - EVO Series	Multi-application platform: Q-Switched Nd:YAG / Q-Switched FD Nd:YAG / Pulsed Nd:YAG / Pulsed FD Nd:YAG / Pulsed Nd:YAG (optional) / Dubed Homeditic	1064 nm / 532 nm / 1064 nm / 532 nm / 1320 nm (optional) / 755 nm	Up to 37.5 J/cm^2 (ns); 50 J/cm^2 (µs) / up to 15 J/cm^2 / up to 500 J/cm^2 / up to 95 J/cm^2 / up to 35 J/cm^2 / up to 120 J/cm^2	6 ns; 6+6 ns; 300 µs / 6 ns; 6+6 ns / 0.3 – 300 ms / 2 – 50 ms / 5 – 10 ms / 0.3 – 300 ms	Rep. rates for Q-switched sources up to 10 Hz and OptiBeam II handpieces for fractional, square and round flat-top spots. Spot sizes for Nano, OptiPulse and microsecond modes: 3, 4.5, 6, 7.5, 9, 10.5 mm round; 2x2, 3x3, 4x4, 5x5 square; fractional round 8 mm. Pulsed sources with contact skin cooling or Skin Cryo air adaptor, rep. rates up to 10 Hz. Spot sizes available for pulsed 755 nm from 6-16 mm; pulsed 532 nm from 2-6 mm; pulsed 1064 nm from 2-16 mm; pulsed 1320 nm (optional)
Domino - EVO Series	Alexandrite	755 nm	Up to 198 J/cm ²	0.3 – 300 ms	532 nm/1064 nm and pulsed 532 nm/1064 nm); Q-Plus Star 1
Light - Evo Series	Multi-application platform: Pulsed Alexandrite / Pulsed FD Nd:YAG / Pulsed Nd:YAG / Pulsed Nd:YAG	755 nm / 532 nm / 1064 nm / 1320 nm (optional)	Up to 120 J/cm ² / up to 95 J/cm ² / up to 500 J/cm ² / up to 35 J/cm ²	0.3 – 300 ms / 2 – 50 ms / 0.3 – 300 ms / 5 – 10 ms	(Q-switched 532 nm/1064 nm and pulsed 1064 nm/1320 nm (optional); Q-Plus Star 2 (Q-switched 532 nm/1064 nm and pulsed 755 nm); Light-EVO Series models: Light A (pulsed 755 nm); Light B (pulsed 1064 nm/1320 nm); Light A Star (pulsed 1064 nm/1320 nm; pulsed 755 nm); Light C (pulsed 1064 nm/ 1320 nm/532 nm); Light 4V (pulsed 1064 nm/1320 nm/532 nm, pulsed 755 nm).
Duetto MT - Evo Series	(optional) Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite +	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 120 J/cm ² / up to 500 J/cm ² / see single sources	0.3 – 300 ms / 0.3 – 300 ms / see single sources	See above.
Thunder Series	Pulsed Nd:YAG Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 500 J/cm ² / up to 500 J/cm ² / see single sources	0.3 - 300 ms / 0.3 - 300 ms / see single sources	Skin Cryo air adaptor integrated with laser handpiece and software integrated Qool-air cooling system. OptiShape handpieces based on Optimized Spot. Optional OptiScan TH available, powerful scanner with a maximum of 29 cm ² scannning area, multiple fill modes and shapes. Spot sizes up to 24 mm; rep. rate for both wavelengths up to 10 Hz with OptiShape handpieces and 15 Hz with OptiScan TH. Exclusive Mixed Technology (Thunder MT) allows shooting both wavelengths simultaneously or sequentially; rep. rate up to 7 Hz with OptiShape handpieces and 10 Hz with OptiScan TH. Thunder Series models: Thunder HR (pulsed 755 nm/). Thunder VT (pulsed 1064 nm); Thunder (pulsed 755 nm/.1064 nm);
Twain IPL	Pulsed Light	650 – 1200 nm / 625 – 1200 nm / 590 – 1200 nm	Up to 25 J/cm ²	5 – 40 ms (pulses train duration up to 240 ms)	Optional handpieces for the EVO Series and Discovery PICO / Pico Plus. Optional skin cooling integrated. Spot sizes: 48x13 mm ² or 25x13 mm ² .
Sciton					
JOULE ClearScan YAG ClearScan ALX BBLs	Laser and Light Platform Nd:YAG Alexandrite BroadBand Light	Various 1064 nm 755 nm 420 – 1400 nm	Up to 400 J/cm ² Up to 400 J/cm ² Up to 400 J/cm ² Up to 30 J/cm ²	0.1 – 200 ms, 1 – 10 sec Up to 200 ms Up to 200 ms Up to 200 ms	Configurable up to ten modules. Computerized scanner; 30 x 30 mm Tx; integrated cooling. Same as above. Table top system, SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters. 15 x 45 mm and 15 x 15 mm snot sizes integrated cooling
BBL	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm
Forever Bare BBL	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	and 15 x 15 mm spot sizes, integrated cooling. FB BBL technology is in motion. SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm and 15 x 15 mm spot sizes, integrated cooling.
Syneron Candela					
elos Plus with Motif LHR/DSL	Optical Energy /	810 nm	Up to 50 J/cm ² / up	N/A	15 x 12 mm spot size.
elōs Plus with Motif HR/DS and Motif HR Plus GentleMAX Pro	Optical Energy / Bipolar RF Long Pulse Alexandrite / Nd:YAG	680 – 980 nm 755 nm / 1964 nm	Up to 45 J/cm ² / up to 25 J/cm ³ Up to 520 J/cm ²	N/A 0.25 – 100 ms	35 x 14 mm and 25 x 14 mm spot sizes. 1.5 - 24 mm spot sizes. Unique, patented Dynamic Cooling Device maximizes patient comfort and Tx efficacy. Air Cooling
GentleLase Pro-U	Long Pulse Alexandrite (upgradable to GentleMAX Pro)	755 nm	Up to 520 J/cm ²	0.25 – 100 ms	Same as above.
GentleYAG Pro-U	Long Pulse Nd:YAG (upgradable to GentleMAX Pro)	1064 nm	Up to 520 J/cm ²	0.25 – 100 ms	Same as above.

FRACTIONAL TECHNOLOGIES COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Asclepion Laser					
Technologies MCI 31 Dermablate	FrYAG	2940 nm	25.1	100 - 1 000 um	VarioSpot handhiece with 1 – 6 mm spot: VarioSpot XI, handhiece
MultiPulse	CO ₂ Laser	10,600 nm	30 W max.	Pulsed, Superpulse, CW, 2,000 us max, with	validoport hal mm spot; MicroSpot handpiece with microlens array and variable skin coverage. Smoke evacuation system integrated. Fixed Focus handpiece with 0.4 mm spot; Zoom handpiece with 0.5 – 3 mm spot; Scanner MicroPulse with pitch of 200 – 2,000 µm.
TattooStar Effect COMBO TattooStar Effect R TattooStar R	Q-Switched Nd:YAG / Ruby Q-Switched Ruby Q-Switched Ruby	532 nm, 585 nm, 694 nm, 1064 nm 694 nm 694 nm	1.5 J / 1.2 J 1.2 J 1.2 J	scanner 8 ns / 40 ns 40 ns 40 ns	Fractional handpiece (Ruby), Dye handpiece (Nd:YAG). Fractional handpiece. Fractional handpiece.
Cutera					
xeo pearl	YSGG	2940 nm	Up to 3.5 J/cm ²	≤1000 µs	
xeo pearl fractional	YSGG	2940 nm	<400 mJ	≤1000 μs	
DEKA					
SmartXide DOT	Fractional CO ₂	10.6 µm	50 W max.	200 – 2000 µs	DOT scanner and free hand handpiece. Touchscreen monitor; Stack
SmartXide ² DOT/RF	Fractional CO ₂ + RF	10.6 µm	80 W max.	100 – 2000 µs	CW, PW, traditional and fractional scanning modes available. PSD technology with selectable pulse shape (SP, DP, UP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner with RF feature; free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; multimedia built-in training videos: huge patient database with videos and photos. User
SmartXide Touch	Fractional CO ₂ + RF	10.6 µm	60 W max.	100 – 2000 µs	protocol storage. Opt. diode laser module. Multidisciplinary. PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner with RF feature; free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; multimedia built-in training videos; huge patient database with videos and photos. User
SmartXide PUNTO	Fractional CO ₂	10.6 µm	50 W max.	100 – 2000 µs	protocol storage. Multidisciplinary. PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner; free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; huge patient database. User protocol storage. Multidisciplinary.
Eunsung Global Corp.					
Duet RF	Bipolar / Monopolar RF	N/A	7 – 50 W	70 – 1,600 ms	Partical handpiece with easy tip replacement. NS, NC, NCE; 64
Fraction CO ₂	CO ₂	10,600 nm	1 – 300 mJ	0.05 – 15 ms	pin, 100 pin, 196 pin. Specialized handpiece for optimum functionality. Micro spot beam size more than 70 $\mu\text{m}.$
Fotona d.o.o.		T MARINA MELENCON	the second second	and the	
SP Dynamis	Nd:YAG / Er:YAG	1064 nm / 2940 nm	Up to 600 J/cm ²	0.1 - 50 ms	F-Runner, fractional Er:YAG scanner: 250 µm spot size, 168 mm ² Tx area. Er:YAG handpieces: 0.25 - 12 mm spot sizes.
X5 Dynamis	EI.TAG	2940 1111	0p.10 500 3/cm=	0.1 - 1.5 ms	Same as above.
HIRONIC	CO Eraptional	10 600 pm	60 m l	Lip to 5 000 up	Matal tuba: coopport tuba, coop aiza 0 + 0 mm to 00 + 00 mm
WIACL	CO ₂ Fractional	10,600 mm	60 113	op to 5,000 µs	beam size: 70 μm - 200 μm. Max. spot quantity: 40,000.
Jeisys Medical					
INTRAcel PRO	Fractional RF	N/A	Up to 50 W	10 ms – 5 sec	49 tip (insulated). Insulated (except 0.3 mm) at end of tips where
INTRAcel	Fractional RF Microneedling	N/A	Up to 50 W	5 – 1,000 ms	Ht is emitted, SHR IIp / 16 Iip (non-insulated). Bipolar and monopolar available. Invasive tip (FRM) and non-invasive tip (SRR). Bipolar and monopolar available. Insulated except for 0.3 mm at end of the tips
IntraGen Edge Fractional	Grid Fractional RF Fractional CO ₂ Laser	N/A 10,600 nm	Up to 200 W 1 – 300 mJ	0 - 2 sec 0.05 - 10 ms	where it emits the RF energy. Full tip (15 x 15 mm) and small tip (7 x 7 mm). Spot size: 120, 350, 800 μm; surgical tip; surgical handpieces (50 and 100 mm).
ULTRAcel	Multi-Functional Platform (HIFU / Fractional RF Microneedling / Grid Fractional RF)	N/A	Up to 3 J / up to 12 – 60 W / up to 200 W	10 - 100 ms / 60 - 2,000 ms / 0 - 2 sec	Platform device features HIFU RF microneedling and non-invasive RF technology. HIFU: B cartridge (depth: 3.0 mm); C cartridge (depth: 4.5 mm). FRM: FRM tip; SRR tip. GFR: large (15 x 15), small (7 x 7) tip.

FRACTIONAL TECHNOLOGIES COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Quanta System Youlaser MT	CO ₂ / GaAS	10,600 nm / 1540 nm	Up to 600 mJ / up to 160 mJ	0.25 – 20 ms / 1 – 20 ms	Exclusive Mixed Technology delivers two wavelengths sequentially or simultaneusly. Scanner area 1.8x1.8 cm (max.), microspot of 300 μ m (10,600 nm) and 350 μ m (1540 nm); Stacking Pulse technologies deliver very short and repeated shots. Shelase option for vaginal and vulvar treatments. Various surgical handpieces available.
Discovery Pico Start Discovery Pico / Discovery Pico Plus	Picosecond Nd:YAG / Picosecond FD Nd:YAG Picosecond FD Nd:YAG / Ruby Q-Switched (only for Discovery Pico Plus)	532 nm / 1064 nm 532 nm / 1064 nm / 694 nm	0.3 J (ps) / 0.6 J (ps); 2 J (µs) 0.3 J (ps); 0.4 J; 0.45 J (ns) / 0.8 J (ps); 0.8 J; 1.2 J (ns); 2 J (µs) / 1.2 J (ns); 2 J (ms)	370 ps / 450 ps; 300 µs 370 ps; 6 ns; 6+6 ns / 450 ps; 6 ns; 6+6 ns; 300 µs / 30 ns; 2 ms	Peak power up to 0.8 GW at 532 nm and 1.8 GW at 1064 nm (depending on the model). Exclusive Pico-Boost technology allow emissions in Pico, Nano and OptiPulse (not for Discovery Pico Start), or microseconds. OptiBeam II technology for flat-top round, square and fractional spots. Spot sizes available: 3, 4.5, 6, 7.5, 9, 10.5 mm round; 2x2, 3x3, 4x4, 5x5, 7x7 (only for Discovery Pico Start) square; fractional round 8 mm. Twain IPL and Twain 2940 options for Discovery Pico and Discovery Pico Plus.
Q-Plus - EVO Series	Multi-Application platform: Q-Switched Nd:YAG / Q-Switched FD Nd:YAG / Q-Switched Ruby / Pulsed Nd:YAG / Pulsed FD Nd:YAG / Pulsed Nd:YAG (optional) / Pulsed Alexandrite	1064 nm / 532 nm / 694 nm / 1064 nm / 532 nm / 1320 nm (optional) / 755 nm	Up to 37.5 J/cm ² (ns); 50 J/cm ² (µs) / up to 15 J/cm ² / up to 30 J/cm ² (ns); 50 J/cm ² / up to 95 500 J/cm ² / up to 95 J/cm ² / up to 35 J/cm ² / up to 120 J/cm ²	6 ns; 6+6 ns; 300 µs / 6 ns; 6+6 ns / 30 ns; 2 ms / 0.3 - 300 ms / 2 - 50 ms / 5 - 10 ms / 0.3 - 300 ms	Rep. rates for Q-switched sources up to 10 Hz, 3 Hz for Ruby and OptiBeam II handpieces for fractional, square and round flat-top spots. Spot sizes for Nano, OptiPulse and microsecond modes: 3, 4.5, 6, 7.5, 9, 10.5 mm round (not with Mixed Mode); 2x2, 3x3, 4x4, 5x5 square; fractional round 8 mm. Pulsed sources with contact skin cooling or Skin Cryo air adaptor, rep. rates up to 10 Hz. Spot sizes available for pulsed 755 nm from 6-16 mm; pulsed 532 nm from 2-6 mm; pulsed 1064 nm from 2-16 mm; pulsed 1320 nm (opt.) from 6-10 mm. Q-Plus-Evo Series models: Q-Plus A (Q-switched 532 nm/1064 nm); Q-Plus C (Q-switched 532 nm/1064 nm and 694 nm); Q-Plus R (Q-switched 532 nm/1064 nm); Q-Plus Star 1 (Q-switched 532 nm/1064 nm and pulsed 532 nm/1064 nm/1320 nm (opt.); Q-Plus Star 2 (Q-switched 532 nm/1064 nm and pulsed 755 nm); Q-Plus C-MT combines with the exclusive Mixed Technology Q-switched 532 nm/1064 and 694 nm.
Twain 2940	Er:YAG	2940 nm	Up to 10 J/cm ²	0.3 – 1 ms	Optional handpiece for the EVO Series and Discovery PICO / Pico Plus. Spot sizes available: 2, 4, 9, 9 fractional.
Sciton					
ProFractional	Er:YAG	2940 nm	Up to 400 J/cm ²	Variable	Expandable module/density 1.5% to 26%.
Halo	Hybrid Fractional Laser (ablative and non-ablative)	1470 nm / 2940 nm	150 mJ/MTZ / 50 mJ/MTZ	Up to 5 ms	Delivery of ablative and non-ablative wavelengths in single pass. Dynamic Thermal Optimization (DTO) for precise energy delivery. Roller tip adaptors; optical navigation; integrated Zimmer cooling advanced mode for precise and independent control of depth and density. Pre-programmed modes and integrated smoke evacuation system.
dīVa	Hybrid Fractional Laser (ablative and non-ablative)	1470 nm / 2940 nm	150 mJ/MTZ, 200 mJ/ MTZ	Up to 5 ms	Hybrid Fractional Laser Technology for the improvement of vaginal tissue. Independently configurable delivery of both ablation and coagulation. High Precision Automation (HPA) Technology allows configurable treatment parameters with automatic energy delivery. Strengthened Quartz Dilator (SQD) optimized energy delivery by dilating tissue and providing 360° of laser delivery.
Syneron Candela					
Profound	Bipolar RF – 460, 5 kHz	N/A	Max. output voltage – 84 VRMS	N/A	RF microneedling device for mandibular and submandibular contouring and wrinkles.
elōs plus/eTwo Sublative Rejuvenation	Fractional Bipolar RF	N/A	Up to 100 mJ/pin / up to 62 mJ/pin	N/A	elös: 64/44 pins. eTwo: standard 64 pin tip with 12 x 12 mm spot. Focal 44 pin tip with 11 x 3 mm spot.
CO2RE	CO ₂ Resurfacing System	10,600 nm	Up to 453 J/cm ²	0.2 – 3.0 ms	Reusable, tapered fractional and surgical Tx handpieces. Four digital super pulsed fractional treatment modes including CO_2RE Light, Mid, Deep and Fusion. Classical ablation and CW Surgical Mode.
PicoWay	Picosecond	1064 nm, 532 nm fractional handpiece	N/A	450 picoseconds, 375 picoseconds	Rejuvenation, pigmentation and toning with limited or no downtime.

 $Note: Data \ subject \ to \ change; please \ refer \ to \ Company \ Directory \ for \ supplier \ contact \ information.$

Skin Rejuvenation Comparison Chart

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
•					
Cutera	laser	532 pm 670 pm 1064 pm	N/A	750 ps + 2 ps	
xeo	Laser	1064 nm	Up to 300 J/cm ²	Up to 300 ms	Optional IPL handpieces.
excel V	Laser	532 nm, 1064 nm	Up to 300 J/cm ²	Up to 60 ms	
DEKA					
SmartXide DOT	Fractional CO ₂	10.6 µm	50 W max.	200 – 2000 µs	DOT scanner and Free hand handpiece. Touchscreen monitor; Stack feature; Smart track delivery mode; Smart Pulse; patient database; CW; PW; traditonal and fractional scanning modes
SmartXide ² DOT/RF	Fractional CO ₂ + RF	10.6 µm	80 W max.	100 – 2000 μs	PSD technology with selectable pulse shape (SP, DP, UP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner with RF feature; free hand; TFT touchscreen monitor. Stack and Smart track delivery modes; multimedia built-in training videos; huge patient database with videos and
SmartXide Touch	Fractional CO ₂ + RF	10.6 µm	60 W max.	100 – 2000 μs	photos. User protocol storage. Optional diode laser module. PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner with RF feature; free hand; TFT touchscreen monitor. Stack and Smart track delivery modes; multimedia built-in training videos; huge patient database with videos and photos. User protocol storage. Optional diode laser module. Multidinginger.
SmartXide PUNTO	Fractional CO ₂	10.6 µm	50 W max.	100 – 2000 μs	PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/ RF; free hand; TFT touchscreen monitor. Stack and Smart track delivery modes; multimedia built-in training videos; huge patient database Llser protocol storage. Multidisciplinary
Synchro HP Excellium	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	LP: 0.2 – 10 ms; SP: 2 – 50 ms / 3 – 8 ms	180 W Nd:YAG laser module with up to 27,000 W pulse peak power; three delivery pulse designs; 11 application handpieces (22 and 24 mm available); optional five filter IPL with enhanced vascular capabilities - 500 G. Auto spot size recognition system. Top hat technology; contact or optional external cooling con- pactions: patient detabase and partocole. No dispective
MiniSilk FT	Pulsed Light System	500, 520, 550, 600, 650 IR Filter	2 – 2.5 J/cm ²	2 – 85 ms (1-3 pulses)	Interchangeable snap-on filters; integrated skin contact cooling; lamp water cooling; transportable. 3.1 cm ² or 6.2 cm ² spot area
Synchro FT	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	700 J/cm ² (max.) SP and LP / 160 J (max.) energy per pulse	LP: 2 – 30 ms; SP: 0.8 – 10 ms (1–3 pulses) / 3 – 8 ms	Nd:YAG and IPL platform with five application specific hand- pieces. Top hat technology and auto spot size recognition system; contact or optional external cooling connections; delivery pulse settings available; patient database and protocols, opt five filters - 30 00 ebsts quarranteed IPL No disposables
Synchro REPLA:Y	Multi-Functional Platform	755 nm Alexandrite / 1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	63.5 J (max.) – 125 W (max.) / LP: 120 J - 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	2 – 50 ms (single pulse); 2 – 40 ms (double pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms / 3 – 8 ms	Alexandrite: 5 Hz and high power (125 W). Nd: YAG: 180 W with up to 27,000W pulse peak power. Three delivery pulse designs and adjustment feature for Alexandrite and Nd: YAG. 12 application handpieces to 24 mm. Auto spot size recogni- tion system. Top hat technology: contact or optional external cooling connections; patient database and protocols. Opt. five filter IPL with enhanced vascular capabilities - 500 G. No
Motus AY	High Frequency Alexandrite / Nd:YAG Laser	755 nm / 1064 nm	Up to 30 J / up to 60 J	2 – 50 ms (single pulse); 4 – 80 ms (twin pulse) / SP: 2 – 50 ms; LP: 0.2 –12 ms	Transportable device; integrated Peltier skin contact cooling. Up to 20 mm spot area with up to 10 Hz rep. rate available on both Nd:YAG and Alex wavelengths. DEKA's proprietary new Mòvèo Technology functionality enables painless and smok- less hair removal. Additional standard handpiece for vascular, skin rejuvenation and other dermatology indications.
Eunsung Global Corp.					
Duet RF	Bipolar / Monopolar RF	N/A	7 – 50 W	70 – 1,600 ms	Partical handpiece with easy tip replacement; NS, NC, NCE;
Fraction CO ₂	CO ₂	10,600 nm	1 – 300 mJ	0.05 – 15 ms	64 pin, 100 pin, 196 pin. Specialized handpiece for optimum functionality; micro spot beam size: more than 70 um
Comfort Dual	Bipolar RF	N/A	25 W	N/A	Shot mode: treatment selection per body area. Motion mode: two pre-set programs per body area and respective energy density.
Microson	High Intensity Focused Ultrasound	N/A	0.2 – 2.0 J/cm ²	N/A	Five cartridges: SM 4-4.5, DD 7-3.0; SD 7-1.5, SD 7-1.5N, SC 4-13; three dot density levels; 25 mm max. length.
Focus Dual	HIFU + RF Needle	N/A	0.2 – 2.0 J/cm ²	N/A	Hive cartridges: SM 4-4.5, DD 7-3.0; SD 7-1.5, SD 7-1.5N, SC 4-13; 25 pin needle.
Fotona d.o.o.					
SP Dynamis	Nd:YAG / Er:YAG	1064 nm / 2940 nm	Up to 600 J/cm ²	0.1 – 50 ms	F-Runner, fractional Er:YAG scanner: 250 µm spot size, 168 mm ² Tx area S-Runner, Er:YAG scanner: 4 mm spot size, 16 cm ² Tx area. L-Runner Nd:YAG scanner: 42 cm ² Tx area. Er:YAG handpieces: 0.25 - 12 mm spot sizes; Nd:YAG handpieces: 2, 20 mm apet sizes; Nd:YAG handpieces:
XS Dynamis	Er:YAG	2940 nm	Up to 500 J/cm ²	0.1 – 1.5 ms	F-Runner, fractional Er:YAG scanner: 250 µm spot size, 168 mm ² Tx area S-Runner, Er:YAG scanner: 4 mm spot size, 16 cm ²
StarWalker	Nd:YAG Q-Switched / Long Pulse	1064 nm	Up to 160 J/cm ²	5 – 20 ns / 250 µs / VERSA3: 15 – 50 ms	Tx area. Er:YAG handpieces: 0.25 - 12 mm spot sizes. Handpieces: 2 - 8 mm spot sizes.

Skin Rejuvenation Comparison Chart

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
HIBONIC					
New MIDAS	RF / IR	Bipolar: 1 MHz / 700 – 2,000 nm, monopolar:	360 W / 75 W	Continuous	No consumables; real-time cooling system (up to -5° C).
MIXEL	CO ₂ Fractional	0.5 – 10 MHz 10,600 nm	60 mJ	Up to 5,000 µs	Metal tube; scanner type, scan size 2 x 2 mm to 20 x 20 mm.
Doublo-S	High Intensity	N/A	0.2 – 2 J/cm ²	N/A	Three types of cartridges: M7, D4, D7, available to 10,000
MIRACLEAR Doublo Gold	Blue Light, Vacuum, IPL High Intensity	400 – 1202 nm N/A	2 – 11 J/cm ² 0.2 – 2 J/cm ²	3 – 27 ms N/A	Small tip: 14.5 x 12.5 mm; normal tip: 26.5 x 14.5 mm. Three types of cartridges: M7, D4, D7 available to 10,000 shots. 5 = 10 mm space between date: length $5 = 25 mm$.
Q-Fit	Q-switched Nd:YAG	1064 nm / 532 nm	1.8 J / 0.5 J	5 – 10 ns	532 Fractional, 1064 Fractional, 1064 7 Fixed Collimated handpieces.
Jeisvs					
cellec v	IPL	420 – 1200 nm	Up to 60 J/cm ²	1 – 60 ms	Nine interchangeable filters: 420S (420 – 600 nm), 500S (500 – 600 nm), 530S (515 – 600 nm), 550S (550 – 600 nm), 530D (530 – 650 nm and 900 – 1200 nm), 560 nm, 640 nm, 700 nm. Spot size: 40 x
TRI-BEAM	QS Nd:YAG	1064 nm / 532 nm /	1.6 J (1064 nm PTP) /	5 – 10 ns (QS) /	Zoom, collimated and fractional handpieces; Dye handpieces:
SmoothCool	Intense Pulsed Light	560 – 950 nm / 700 – 950 nm	Up to 65 J/cm ²	1 – 60 ms	585 and 650 nm. 560 (560 - 950 nm) handpiece: 34×8 mm spot size; 700 (700 - 950 nm) nm) large handpiece: 50×10 mm spot size; 700 (700 - 950 nm) small handpiece: 34×8 mm spot size; 700 (700 - 950 nm)
Edge Fractional	Fractional CO ₂ Laser	10,600 nm	1 – 300 mJ	0.05 – 10 ms	Spot size: 120, 350, 800 µm, surgical tip; surgical handpieces (50 and 100 mm)
INTRAcel	Fractional RF Microneedling	N/A	Up to 50 W	5 – 1,000 ms	Invasive tip (FRM) and non-invasive tip (SRR); bipolar and monopolar available. Insulated except for 0.3 mm at end of the tips where it emits the PE energy.
INTRAcel PRO	Fractional RF Microneedling	N/A	Up to 50 W	10 ms – 5 sec	49 tip (insulated). Insulated (except 0.3 mm) at end of tips where RF is emitted. SRR Tip / 16 Tip (non-insulated). Bipolar and monopolar available
IntraGen ULTRAcel	Grid Fractional RF Multi-Functional Platform (HIFU / Fractional RF Microneedling / Grid Fractional RF)	N/A N/A	Up to 200 W Up to 3 J / up to 12 – 60 W / up to 200 W	0 – 2 sec 10 – 100 ms / 60 – 2,000 ms / 0 – 2 sec	Full tip (15 x 15 mm) and small tip (7 x 7 mm). Platform device features HIFU, RF microneedling and non- invasive RF technology. HIFU: B cartridge (depth: 3.0 mm); C cartridge (depth: 4.5 mm). FRM: FRM tip; SRR tip. GFR: large (15 x 15); small (7 x 7) tip.
Lutropic					
SPECTRA	Q-switched Nd:YAG	532 nm, 585 nm,	Up to 1.5 J	5 – 7 ns / 300 µs,	Variety of handpieces: 3 - 8 mm Zoom Collimated; 1 - 7 mm
SPECTRA XT	Nd:YAG based Multi-Platform	650 nm, 1064 nm 1064 nm, 532 nm, 585 nm, 595 nm, 650 nm, 660 nm	1064: 1.2 J at ns max., 4.5 J at quasi-long max.; 532: 0.4 J max., 585 and 595: 0.25 J max., 650 and 660:	(Spectra Mode) 5 – 10 ns, 300 ms	Zoom; 7 mm Fixed Collimated; 585 nm and 650 nm Dye. Zoom HP, Collimated, Dye, Gold Toning, RuVY Touch, Fractional.
SOLARI	IPL	420 – 950 nm	35 J/cm ² (with 510	5 – 300 ms	Cut-off filters.
HEALITE	LED	830 nm (with 590 nm); 633 nm; 415 nm avail- able (single wavelength per bead)	Focused: up to 150 mW/cm ² ; up to 80 mW/cm ² ; up to 50 mW/cm ²	N/A	Variety of heads and configurations available: single and dual wavelength heads. Planar and Focused (max. intensity) delivery options.
eCO2	CO ₂ Fractional	10,600 mm	2 – 240 mJ	Ultra Pulse: 40 – 1,000 µs; Super Pulse: 1 – 5 ms	Fractional or Insicional handpieces. Variety of Fractional handpiece tips available: 120, 300, 500 micron tip.
INFINI	Bi-Polar Fractional RF	N/A	50 W	10 – 1,000 ms	Variety of handpieces and tips available. MFR handpiece: 49 tip (7 x 7 needles, scan size: 10 x 10 mm); Comfort / 16 tip (4 x 4 needles, scan size: 5 x 5 mm); SFR handpiece: 144L tip (12 x 12 electrodes, Dual Channels, scan size: 20 x 20 mm); 64S tip (8 x 8 electrodes, Single Channel, scan size: 10 x 10 mm).
MOSAIC HP CLARITY	Er:Glass Fractional Long Pulsed	1550 nm 755 nm / 1064 nm	4 – 120 mJ Up to 600 J/cm ²	N/A 0.35 – 300 ms	Skin and hair tips. Nine adjustable spot sizes, ICD cryogen or air cooling.
ACTION II	Fractional Er:YAG	2950 nm	50 J, Long pulse:	250 µs, Long Pulse:	Fractional, Zoom, Shining Peel and Petit Lady handpieces.
Lasemd	Thulium Laser	1927 nm	Up to 20 mJ	N/A	Roller set. comb tip set, square tip set, Lasemd ampoules and cosmetics
PICOPLUS	Q-Switched Nd:YAG	1064 nm, 532 nm, 595 nm, 660 nm	Up to 800 mJ	450 ps/2ns	Five diffrent handpieces: 1 - 6 mm Zoom, 6 - 10 mm Pico Toning, 2 and 5mm Gold Toning+, 2 and 3 mm RuVY Touch+, 7.4 x 7.4 mm Focused Dots.
Quanta System					
Discovery Pico Start	Picosecond Nd:YAG / Picosecond FD Nd:YAG	532 nm / 1064 nm	0.3 J (ps) / 0.6 J (ps); 2 J (μs)	370 ps / 450 ps; 300 μs	Peak power up to 0.8 GW at 532 nm and 1.8 GW at 1064 nm (depending on the model). Exclusive Pico-Boost technology allows emissions in Pico, Nano and OptiPulse (not for Discovery Pico Start)
Discovery Pico / Discovery Pico Plus	Picosecond Nd:YAG / Picosecond FD Nd:YAG / Ruby Q-Switched (only for Discovery Pico Plus)	532 nm / 1064 nm / 694 nm	0.3 J (ps); 0.4 J; 0.45 J (ns) / 0.8 J (ps); 0.8 J; 1.2 J (ns); 2 J (µs) / 1.2 J (ns); 2 J (ms)	370 ps; 6 ns; 6+6 ns / 450 ps; 6ns; 6+6 ns; 300 μs / 30 ns; 2 ms	or microseconds. OptiBeam II technology for flat-top round, square and fractional spots. Spot sizes available: 3, 4.5, 6, 7.5, 9, 10.5 mm round; 2x2, 3x3, 4x4, 5x5, 7x7 (only for Discovery Pico Start) square; fractional round 8 mm Twain IPL and Twain 2940 options for Discovery Pico and Discovery Pico Plus

SKIN REJUVENATION COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
				-	
Quanta System - continued					
Youlaser M I	CO ₂ / GaAS	10,600 nm / 1540 nm	Up to 600 mJ / up to 160 mJ	0.25 – 20 ms / 1 – 20 ms	Exclusive Mixed Technology delivers two wavelengths sequentially or simultaneously. Scanner area 1.8x1.8 cm (max.), micro-spot of 300 μ m (10,600 nm) and 350 μ m (1540 nm); Stacking Pulse technologies deliver very short and repeated shots. Shelase option for vaginal and vulvar treatments. Various surgical handpieces available.
Q-Plus - EVO Series	Multi-application platform: Q-Switched Nd:YAG / Q-Switched FD Nd:YAG / Q-Switched Ruby / Pulsed Nd:YAG / Pulsed ED Nd:YAG / Pulsed ED Nd:YAG (optional) / Pulsed Alexandrite	1064 nm / 532 nm / 694 nm / 1064 nm / 532 nm / 1320 nm (optional) / 755 nm	Up to 37.5 J/cm ² (ns); 50 J/cm ² (µs) / up to 15 J/cm ² (µs) / up to 30 J/cm ² (ns); 50 J/cm ² / up to 550 J/cm ² / up to 35 J/cm ² / up to 120 J/cm ²	6 ns; 6+6 ns; 300 µs / 6 ns; 6+6 ns / 30 ns; 2 ms / 0.3 - 300 ms / 2 - 50 ms / 5 - 10 ms / 0.3 - 300 ms	Rep. rates for Q-switched sources up to 10 Hz, 3 Hz for Ruby, and OptiBeam II handpieces for fractional, square and round flat-top spots. Spot sizes for Nano, OptiPulse and microsecond modes: 3, 4.5, 6, 7.5, 9, 10.5 mm round (not with Mixed Mode); 2x2, 3x3, 4x4, 5x5 square; fractional round 8 mm. Pulsed sources with contact skin cooling or Skin Cryo air adaptor, rep. rates up to 10 Hz. Spot sizes available for Pulsed 755 nm from 6 to 16 mm; pulsed 532 nm from 2-6 mm; pulsed 1064 nm from 2-16 mm; pulsed 1320 nm (optional) from 6-10 mm. Q-Plus-Evo Series models: Q-Plus A (Q-switched 532 nm/1064 nm): Co-Plus C (Q-switched 532 nm /
Light - Evo Series	Multi-application platform: Pulsed Alexandrite / Pulsed FD Nd:YAG / Pulsed Nd:YAG / Pulsed Nd:YAG (optional)	755 nm / 532 nm / 1064 nm / 1320 nm (optional)	Up to 120 J/cm ² / up to 95 J/cm ² / up to 500 J/cm ² / up to 35 J/cm ²	0.3 – 300 ms / 2 – 50 ms / 0.3 – 300 ms / 5 – 10 ms	1064 nm and 694 nm); Q-Plus R (Q-switched 694 nm); Ultralight (Q-switched 532 nm/1064 nm and pulsed 532 nm/1064 nm); Q-Plus Star 1 (Q-switched 532 nm/1064 nm and pulsed 1064 nm/1320 nm (optional); Q-Plus Star 2 (Q-switched 532 nm/1064 nm and pulsed 755 nm); Q-Plus C-MT combines exclusive Mixed Technology Q-switched 532 nm/1064 nm and 694 nm. Light-EVO Series models: Light B (pulsed 1064 nm/1320 nm); Light A Star (pulsed 1064 nm/
Duetto MT - Evo Series	Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 120 J/cm ² / up to 500 J/cm ² / see single sources	0.3 – 300 ms / 0.3 – 300 ms / see single sources	1320 nm; pulsed 755 nm); Light C (pulsed 1064 nm/1320 nm/532nm); Light 4V (pulsed 1064 nm/1320 nm/532 nm, pulsed 755 nm).
Thunder Series	Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 500 J/cm ² / up to 500 J/cm ² / see single sources	0.3 - 300 ms / 0.3 - 300 ms / see single sources	Skin Cryo air adaptor integrated into laser handpiece and software integrated Qool-air cooling system. OptiShape handpieces based on Optimized Spot. Optional OptiScan TH available, powerful scanner with a maximum of 29 cm ² scanning area, multiple fill modes and shapes. Thunder Series models: Thunder HR (pulsed 755 nm), Thunder VT (pulsed 1064 nm), Thunder (pulsed 755 nm/1064 nm); Thunder MT (pulsed 755 nm/1064 nm/755 nm + 1064 nm); Spot sizes up to 24 mm; rep. rate for both wavelengths up to 10 Hz with OptiShape handpieces and 15 Hz with OptiScan TH. Exclusive Mixed Technology (Thunder MT) allows delivery of both wavelengths simultaneously or sequentially; rep. rate up to 7 Hz with OptiShape
Twain IPL	Pulsed Light	590 – 1200 nm / 570 – 1200 nm / 550 – 1200 nm	Up to 25 J/cm ²	5 – 40 ms (pulses train duration up to 240 ms)	handpieces and 10 Hz with OptiScan TH. Optional handpieces for the EVO Series and Discovery PICO / Pico Plus. Optional skin cooling integrated. Spot sizes: 48x13 mm ² or 25x13 mm ² .
Twain 2940	Er:YAG	2940 nm	Up to 10 J/cm ²	0.3 – 1 ms	Optional handpiece for the EVO Series and Discovery PICO / Pico Plus. Spot sizes available: 2, 4, 9, 9 fractional.
Sciton					
JOULE	Nd:YAG / Er:YAG /	Various	Up to 400 J/cm ²	0.1 - 200 ms.	Configurable up to ten modules.
UUUUU	BroadBand Light /	Valious	00 10 100 0/011	1 - 10 sec	
Halo	Alexandrite Hybrid Fractional Laser (ablative and non-ablative)	1470 nm / 2940 nm	150 mJ/MTZ, 50 mJ/MTZ	Up to 5 ms	Delivery of ablative and non-ablative wavelengths in single pass. Dynamic Thermal Optimization (DTO) for precise energy delivery. Roller tip adaptors; optical navigation; integrated Zimmer cooling advanced mode for precise and independent control of depth and density. Pre-programmed modes and
ClearScan YAG Contour TRL	Nd:YAG Tunable Resurfacing Laser (TRL)	1064 nm 2940 nm	Up to 400 J/cm ² Up to 40 W	Up to 200 ms Up to 50 ms	Integrated smoke evacuation system. Computerized scanner; 30 x 30 mm Tx; integrated cooling. Computerized scanner, smart user interface, MicroLaserPeel, Tunable Resurfacing Laser.
ProFractional ThermaScan BBLs	Er:YAG Nd:YAG BroadBand Light	2940 nm 1319 nm 420 – 1400 nm	Up to 400 J/cm ² Up to 30 J/cm ² Up to 30 J/cm ²	Variable Up to 200 ms Up to 200 ms	Expandable module / density 1.5% – 26%. Computerized scanner; 30 x 30 mm Tx; integrated cooling. Table top system, SkinTyte II, 420, 515, 560 590, 640, 695 nm
BBL	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	and 15 x 15 mm spot sizes, integrated cooling.
Syneron Candela					
Profound	Bipolar RF – 460,	N/A	Max. output voltage	N/A	RF microneedling device for mandibular and submandibular
aTwo	5 kHz Fractionated Binales	N/A	84 VRMS	N/A	contouring and wrinkles.
eiwo	RF	NOA.	Up to 45 J/cm ² ; up	1977	with 11 x 3 mm spot.
elos Plus with SR/SRA/SR	Optical Energy /	470 – 980 nm	to 25 J/cm2; up to	N/A	SR/SRA: 25 x 12 mm; SR/SRA Plus: 35 x 14 mm; SRA Mini
Plus/SRA Plus/SRA Mini/ST Vbeam Perfecta	Pulsed Dye Laser	595 nm	Up to 40 J/cm ²	0.45 – 40 ms	15 x 14 mm. Eight spot sizes up to 12 mm, including 3 x 10 elliptical and pigmented lesion handpieces. Unique, patented Dynamic Cooling Device maximizes patient conflict and Tx officeou
GentleMAX Pro	Long Pulse Alexandrite / Nd:YAG	755 nm / 1964 nm	Up to 520 J/cm ²	0.25 – 100 ms	1.5 – 24 mm spot sizes. Unique, patented Dynamic Cooling Device maximizes patient comfort and Tx efficacy. Air cooling compatible delivery systems available.
GentleLase Pro-U	Long Pulse Alexandrite (upgradable to	755 nm	Up to 520 J/cm ²	0.25 - 100 ms	Same as above.
GentleYAG Pro-U	GentleMAX Pro) Long Pulse Nd:YAG (upgradable to GentleMAX Pro)	1064 nm	Up to 520 J/cm ²	0.25 – 100 ms	Same as above.

VASCULAR TECHNOLOGY COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Cutera	Lagar	520 nm 1064 nm	Lin to 200 Liam?	Lin to 60 mg	
xeo	Laser / Limelight	1064 nm / 520 – 1100 nm	300 J/cm² / ≤30 J/cm²	Up to 300 ms / Automatic	
DEKA					
Synchro VAS-Q	Multi-Functional Platform	595 nm PDL; RightLight Technology	8 J; 33 J/cm²	0.5 – 40 ms	Powerful PDL with RightLight Technology. Eliminates vascular anomalies, malformations and superficial erithrosys. Four handpieces (5 mm, 7 mm, 10 mm, 12 mm) with auto spot size recognition system. Top hat technology and high energy modality up to 7 J; delivery pulse settings available.
Synchro HP Excellium	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	LP: 0.2 – 10 ms; SP: 2 – 50 ms / 3 – 8 ms	180 W Nd:YAG laser module with up to 27,000 W pulse peak power. Three delivery pulse designs. Eleven application handpieces (22 and 24 mm available). Opt. five filter IPL with enhanced vascular capabilities - 500 G. Auto spot size recogni- tion system. Top hat technology; contact or opt. external cooling connections: patient database and protocols. No disposables.
Synchro FT	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	700 J/cm ² (max.) SP and LP / 160 J (max.) energy per pulse	LP: 2 – 30 ms; SP: 0.8 – 10 ms (1–3 pulses) / 3 – 8 ms	Md:YAG and IPL platform with five application specific handpieces. Top hat technology and auto spot size recognition system; contact or opt. external cooling connections; delivery pulse settings available; patient database and protocols. Opt. five filters: 30 000 chots guaranteed IPL No disposables
MiniSilk FT	Pulsed Light System	500, 520, 550, 600, 650 IR Filter	2 – 2.5 J/cm ²	2 – 85 ms (1–3 pulses)	Interiors, 50,000 shots guaranteed in L. No disposables. Interchangeable snap-on filters. Integrated skin contact cooling; Iamp water cooling. Transportable; 3.1 cm ² or 6.2 cm ² spot area available. IB filter available for greater skin tightening.
Synchro REPLA:Y	Multi-Functional Platform	755 nm Alexandrite / 1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	63.5 J (max.) – 125 W (max.) / LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	2 – 50 ms (single pulse); 2 – 40 ms (double pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms / 3 – 8 ms	Alexandrite emission: 5 Hz and high power (125 W) system. Nd:YAG: 180 W laser module with up to 27,000 W pulse peak power. Three delivery pulse designs and adjustment feature for Alexandrite and Nd:YAG. Twelve application handpieces to 24 mm. Auto spot size recognition system. Top hat technology; contact or opt. external cooling connections; patient database and protocols. Opt. five filter IPL with enhanced vascular
Motus AY	High Frequency Alexandrite / Nd:YAG Laser	755 nm / 1064 nm	Up to 30 J / up to 60 J	2 – 50 ms (single pulse); 4 – 80 ms (twin pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms	capabilities - 500 G. No disposables. Transportable; integrated Peltier skin contact cooling. Vascular lesion application via standard optional handpieces. Up to 20 mm spot area available with up to 10 Hz rep. rate on both Nd:YAG and Alex wavelengths. DEKA's proprietary new Mòvèo technology functionality enables painless and smokless hair removal. Additional standard handpiece for pigmented lesions, skin rejuvenation and other dermatology indications.
Eunsung Global Corp.					
Clearlight	Intense Pulsed Light	430 – 1200 nm	3 – 35 J/cm ²	5 – 25 ms	Differentiated handpiece of 15 x 40 mm wide spot size.
Fotona d.o.o.					
SP Dynamis	Nd:YAG	1064 nm	Up to 600 J/cm ²	0.1 – 50 ms	S-11: Nd:YAG scanner: 42 cm ² Tx area. Nd:YAG handpieces:
StarWalker	Nd:YAG Q-Switched / Long Pulse, KTP Q-Switched / Long Pulse	1064 nm, 532 nm	Up to 160 J/cm ² , 6.4 – 76.8 J/cm ² , VERDE: 113 J/cm ²	VERSA3: 15 – 50 ms, VERDE: 15 – 50 ms	2 - 8 mm spot sizes. 1.5 - 6 mm spot sizes.
Jeisys					
cellec v SmoothCool	IPL	420 – 1200 nm 560 – 950 nm / 700 – 950 nm	Up to 60 J/cm ² Up to 65 J/cm ²	1 – 60 ms 1 – 60 ms	Nine interchangeable filters: $420S (420 - 600 \text{ nm}), 500S (500 - 600 \text{ nm}), 530S (515 - 600 \text{ nm}), 550S (550 - 600 \text{ nm}), 530D (530 - 650 \text{ nm} and 900 - 1200 \text{ nm}), 560 nm, 640 \text{ nm}, 700 \text{ nm}. Spot size: 40 x 10 \text{ nm}; contact cooling. 560 (560 - 950 \text{ nm}) handpiece: 34 x 8 \text{ nm spot size; 700} (700 - 950 \text{ nm}) large handpiece: 50 \times 10 \text{ nm spot size; 700} (700 - 950 \text{ nm}) \text{ small handpiece: } 34 x 8 \text{ nm spot size. Contact cooling (below 0° C).}$
Lumenis					
IPL Quantum DL	Nd:YAG	1064 nm	90 – 150 J/cm ²	5 – 38 ms	Upgradable to hair removal, rejuvenation and tattoo removal.
IPL Quantum SR	Intense Pulsed Light	560 – 1200 nm	15 – 45 J/cm ²	6 – 26 ms	Spot size 6 mm. Upgradable to hair removal, deep vascular lesions and leg veins and tattoo removal. Spot size 34 x 8 mm, optional 590 nm and 640 nm heads for reiuvenation.
Lumenis One	Intense Pulsed Light / Nd:YAG / LightSheer Diode	515 – 1200 nm / 1064 nm / 800 nm	10 – 40 J/cm² / 10 – 225 J/cm² / 10 – 100 J/cm²	3 – 100 ms / 2 – 20 ms / 5 – 400 ms	Multi-technology, multi-application platform. Upgradable, expandable, seven IPL filters, novel Optimal Pulse Technology for multiple sequential pulsing, optimized presets and patient database, spot sizes: 15 x 35 mm and 8 x 15 mm (IPL); 2 x 4, 6, 9 mm (Nd:YAG), LightSheer: 9 x 9 mm.
M22	Modular / Plug and Play / Intense Pulsed Light	515 – 1200 nm	N/A	4 – 20 ms	Optimum Pulse Technology (OPT), multiple sequential pulsing, continuous contact cooling with SapphireCool light guides: 15 x 35 mm, 8 x 15 mm. ExpertFilters: 515, 560, 590, 615, 640 and 695 nm.

VASCULAR TECHNOLOGY COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Lutronic					
SOLARI	IPL	420 – 950 nm	35 J/cm² (at 510 nm	5 – 300 ms	Cut-off filters.
CLARITY	Long Pulsed Alexandrite / Nd:YAG	755 nm / 1064 nm	filter) Up to 600 J/cm ²	0.1 – 300 ms	Nine spot sizes including 2, 3, 5, 8, 10, 12, 15, 18, 20 mm. ICD Cryogen or air cooling available.
PICOPLUS	Laser Q-switched Nd:YAG	1064 nm, 532 nm, 595 nm, 660 nm	Up to 800 mJ	450 ps / 2ns	Five different handpieces: 1 - 6 mm Zoom, 6 - 10 mm Pico Toning, 2 and 5 mm Gold Toning+, 2 and 3 mm RuVY Touch+, 7.4 x 7.4 mm Focused Dots.
Quanta System					
585	Solid State Laser	585 nm	Up to 63 J/cm ²	0.25 – 8,000 ms	Solid state laser with no consumables. Spot sizes: 0.5, 1, 1.5,
Q-Plus - EVO Series	Multi-application platform: Q-Switched Nd:YAG / Q-Switched FD Nd:YAG / Pulsed Nd:YAG / Pulsed Nd:YAG / Pulsed Nd:YAG (optional) / Pulsed	1064 nm / 532 nm / 1064 nm / 532 nm / 1320 nm (optional) / 755 nm	Up to 37.5 J/cm ² (ns); 50 J/cm ² (µs) / up to 15 J/cm ² / up to 500 J/cm ² / up to 95 J/cm ² / up to 35 J/cm ² / up to 120 J/cm ²	6 ns; 6+6 ns; 300 µs / 6 ns; 6+6 ns / 0.3 - 300 ms / 2 - 50 ms / 5 - 10 ms / 0.3 - 300 ms	3 mm; Scanner (optional) with max. scanning area of 1.8x1.8 cm. Rep. rates for Q-switched sources up to 10 Hz and OptiBeam II handpieces for fractional, square and round flat-top spots. Spot sizes for Nano, OptiPulse and microsecond modes: 3, 4.5, 6, 7.5, 9, 10.5 mm round; 2x2, 3x3, 4x4, 5x5 square; fractional round 8 mm. Pulsed sources with contact skin cooling or Skin Cryo air adaptor, rep. rates up to 10 Hz. Spot sizes available for pulsed 755 nm from 6-16 mm; pulsed 532 nm from 2-6 mm; pulsed 1064 nm from 2-16 mm; pulsed 1320 nm (optional) from 6-10 mm. Q-Plus-Evo Series models: Ultralight (Q-switched
Light - Evo Series	Alexandrite Multi-application platform: Pulsed Alexandrite / Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Nd:YAG / (optional)	755 nm / 532 nm / 1064 nm / 1320 nm (optional)	Up to 120 J/cm ² / up to 95 J/cm ² / up to 500 J/cm ² / up to 35 J/cm ²	0.3 – 300 ms / 2 – 50 ms / 0.3 – 300 ms / 5 – 10 ms	532 nm/1064 nm and pulsed 532 nm/1064 nm; Q-Plus Star 1 (Q-switched 532 nm/1064 nm and pulsed 1064 nm/1320 nm (optional); Q-Plus Star 2 (Q-switched 532 nm/1064 nm and pulsed 755 nm); Light-EVO Series models: Light A (pulsed 755 nm); Light B (pulsed 1064 nm/1320 nm); Light A Star (pulsed 1064 nm/ 1320 nm; pulsed 755 nm); Light C (pulsed 1064 nm/1320 nm/ 532 nm); Light 4V (pulsed 1064 nm/1320 nm/532 nm, pulsed 755 nm)
Duetto MT - Evo Series	Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 120 J/cm ² / up to 500 J/cm ² / see single sources	0.3 – 300 ms / 0.3 – 300 ms / see single sources	See above.
Thunder Series	Pulsed Alexandrite / Pulsed Alexandrite / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 500 J/cm ² / up to 500 J/cm ² / see single soucres	0.3 – 300 ms / 0.3 – 300 ms / see single sources	Skin Cryo air adaptor integrated into laser handpiece and soft- ware integrated Qool-air cooling system. OptiShape handpieces based on Optimized Spot. Optional OptiScan TH available, powerful scanner with a max. 29 cm ² scannning area, multiple fill modes and shapes. Thunder Series models: Thunder HR (pulsed 755 nm), Thunder VT (1064 nm), Thunder (pulsed 755 nm/1064 nm); Thunder MT (pulsed 755 nm/1064 nm/755 nm+1064 nm). Spot sizes: up to 24 nm; rep. rate for both wavelengths up to 10 Hz with OptiShape handpieces and 15 Hz with OptiScan TH.
Twain IPL	Pulsed Light	550 – 1200 nm	Up to 25 J/cm ²	5 – 40 ms (pulses train duration up to 240ms)	both wavelengths simultaneously or sequentially; rep. rate up to 7 Hz with OptiShape handpieces and 10 Hz with OptiScan TH. Optional handpieces for EVO Series and Discovery PICO / Pico Plus. Optional skin cooling integrated. Spot sizes: 48x13 mm ² or 25x13 mm ² .
Sciton					
JOULE	Laser and Light	Various	Up to 400 J/cm ²	0.1 – 200 ms,	Configurable up to ten modules.
ClearScan YAG ClearScan ALX Pro-V	Platform Nd:YAG Alexandrite Nd:YAG	1064 nm 755 nm 1319 nm	Up to 400 J/cm ² Up to 400 J/cm ² Up to 50 Watts	1 – 10 sec Up to 200 ms Up to 200 ms N/A	Computerized scanner; 30 x 30 mm Tx; integrated cooling. Same as above. Endovenous and transcutaneous laser Tx of varicose and other veins. Uses non-proprietary fibers.
BBLs	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	Table top system, SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm and 15 x 15 mm spot sizes, integrated accline
BBL	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm and 15 x 15 mm spot sizes, integrated cooling.
Syneron Candela					
Vbeam Perfecta	Pulsed Dye Laser	595 nm	Up to 40 J/cm ²	0.45 – 40 ms	Eight spot sizes up to 12 mm, including 3 x 10 elliptical and
GentleMAX Pro	Long Pulse Alexandrite / Nd:YAG	755 nm / 1964 nm	Up to 520 J/cm ²	0.25 – 100 ms	pigmented lesion handpieces. Unique, patented Dynamic Cooling Device maximizes patient comfort and Tx efficacy. 1.5 - 24 mm spot sizes. Unique, patented Dynamic Cooling Device maximizes patient comfort and Tx efficacy. Air Cooling Compatible delivery systems available.
GentleLase Pro-U	Long Pulse Alexandrite (upgradable to	755 nm	Up to 520 J/cm ²	0.25 – 100 ms	Same as above.
GentleYAG Pro-U	GentleMAX Pro) Long Pulse Nd:YAG (upgradable to GentleMAX Pro)	1064 nm	Up to 520 J/cm ²	0.25 – 100 ms	Same as above.
Venus Concept, Ltd.					
Venus Versa	IPL	SR515: 515 – 950 nm, SR580: 580 – 950 nm	5 – 25 J/cm ²	5 – 20 ns	10 x 30 mm spot.



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Dieter Manstein





ACNE TX DEVICE COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories
Cutera excel V	Laser	532 nm / 1064 nm	Up to 300 J/cm ²	Up to 60 ms	
DEKA					
SmartXide DOT	Fractional CO ₂	10.6 µm	50 W max.	200 – 2000 µs	DOT scanner and free hand handpiece. Touchscreen monitor; Stack feature: Smart track delivery mode. Smart pulse: patient database:
SmartXide ² DOT/RF	Fractional CO ₂ + RF	10.6 µm	80 W max.	100 – 2000 μs	CW, PW, traditional and fractional scanning modes available. PSD technology with selectable pulse shape (SP, DP, UP, HP, PW, CW, traditional and fractional scanning modes available). DOT/ RF scanner with RF feature; free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; multimedia built-in training wideo: huga patient database with videos and photos. User
SmartXide Touch	Fractional CO ₂ + RF	10.6 µm	60 W max.	100 – 2000 μs	Protocol storage. Optional diode laser module. PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner with RF feature; free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; multimedia built-in training videos; huge patient database with videos and photos. User
SmartXide PUNTO	Fractional CO2	10.6 µm	50 W max.	100 – 2000 µs	protocol storage. Optional diode laser module. Multidisciplinary. PSD technology with selectable pulse shape (SP, DP, HP, PW, CW, traditional and fractional scanning modes available). DOT/RF scanner, free hand; TFT touchscreen monitor; Stack and Smart track delivery modes; huge patient database. User protocol
Synchro HP Excellium	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	LP: 0.2 – 10 ms; SP: 2 – 50 ms / 3 – 8 ms	180 W Nd:YAG laser module with up to 27,000 W pulse peak power. Three delivery pulse designs; 11 application handpieces (22 and 24 mm available); and opt. five filter IPL with enhanced vascular capabilities – 500 G. Auto spot size recognition system. Top hat technology; contact or opt. external cooling connections;
Synchro FT	Multi-Functional Platform	1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	700 J/cm ² (max.) SP and LP / 160 J (max.) energy per pulse	LP: 2 – 30 ms; SP: 0.8 – 10 ms (1–3 pulses) / 3 – 8 ms	patient database and protocols. No disposables. Nd:YAG and IPL platform with five application specific handpieces. Top hat technology and auto spot size recognition system; contact or opt. external cooling connections. Delivery pulse settings available; patient database and protocols; opt. five filters; 30,000 shots guaranteed IPI. No disposables
Synchro REPLA:Y	Multi-Functional Platform	755 nm Alexandrite / 1064 nm Nd:YAG / 500, 520, 550, 600, 650 nm IPL	63.5 J (max.) – 125 W (max.) / LP: 120 J – 180 W (max.); SP: 120 J (max.) / 160 J (max.) energy per pulse	2 – 50 ms (single pulse); 2 – 40 ms (double pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms / 3 – 8 ms	Alexandrite emission: 5 Hz and high power (125 W) system. Nd:YAG: 180 W laser module with up to 27,000 W pulse peak power. Three delivery pulse designs and adjustment feature for Alexandrite and Nd:YAG. Twelve application handpieces to 24 mm. Auto spot size recognition system. Top hat technology; contact or opt. external cooling connections; patient database and protocols; opt. five filter IPL with enhanced vascular capabilities - 500 G.
Motus AY	High Frequency Alexandrite / Nd:YAG Laser	755 nm / 1064 nm	Up to 30 J / up to 60 J	2 – 50 ms (single pulse); 4 – 80 ms (twin pulse) / LP: 0.2 – 12 ms; SP: 2 – 50 ms	No disposables. Transportable device; integrated Pettier skin contact cooling. Up to 20 mm spot area with up to 10 Hz rep. rate available on both Nd:YAG and Alex wavelengths. DEKA's proprietary new Mòvèo Technology functionality enables painless and smokless hair removal. Additional standard handpiece for vascular, skin rejuvenation and other dermatology indications.
Eunsung Global Corp.					
Clearlight	Intense Pulsed Light	430 – 1200 nm	3 – 35 J/cm ²	5 – 25 ms	Differentiated handpiece of 15 x 40 mm wide spot size.
Fotona d.o.o.					
SP Dynamis	Nd:YAG / Er:YAG	1064 nm / 2940 nm	Up to 600 J/cm ²	0.1 – 50 ms	F-Runner, fractional Er:YAG scanner: 250 µm spot size, 168 mm ² Tx area. S-Runner, Er:YAG scanner: 4 mm spot size, 16 cm ² Tx area. S-11: Nd:YAG scanner: 42 cm ² Tx area. Er:YAG handpieces: 0.25 - 12 mm spot sizes: Nd:YAG handpieces: 2 - 20 mm spot sizes.
XS Dynamis	Er:YAG	2940 nm	Up to 500 J/cm ²	0.1 – 1.5 ms	F-Runner, fractional Er:YAG scanner: 250 µm spot size, 168 mm ² Tx area. S-Runner, Er:YAG scanner: 4 mm spot size, 16 cm ² Tx
StarWalker	Nd:YAG Q-Switched / Long Pulse	1064 nm	Up to 160 J/cm ²	VERSA3: 15 – 50 ms	area. Er: YAG handpieces: 0.25 - 12 mm spot sizes. Handpieces: 2 - 8 mm spot sizes.
HIRONIC					
MIRACLEAR	Blue Light, Vacuum,	400 – 1200 nm	2 – 11 J/cm ²	3 – 25 ms	Small tip: 14.5 x 12.3 mm; normal tip: 26.5 x 14.5 mm.
A-Fit	IPL Diode / RF	1450 nm / 0.5, 0.7, 1.0 MHz	Max. 13 J/cm ²	250 ms	RF needle.
Jeisys Medical					
AcGen	1 Needle RF / Grid	N/A	Up to 15 W / up to	0 – 2 sec	1 needle tip (0.8, 1.2, 1.5 mm): insulated for 0.3 mm at top of tips where
cellec v	Practional RF	420 – 1200 nm	Up to 60 J/cm ²	1 – 60 ms	I+F energy is emitted. Grad HF (7 x 7 and 15 x 5 mm) tips. Nine interchangeable filters: 420S (420 – 600 nm), 500S (500 – 600 nm), 530S (515 – 600 nm), 550S (550 – 600 nm), 530D (530 – 650 nm and 900 – 1200 nm), 560 nm, 640 nm, 700 nm. Spot size: 40 x 10 mm; contract cooling.
SmoothCool	IPL	560 – 950 nm / 700 – 950 nm	Up to 65 J/cm ²	1 – 60 ms	530 (530 – 950 nm) handpiece: 34 x 8 mm spot size; 700 (700 – 950 nm) large handpiece: 50 x 10 mm spot size; 700 (700 – 950 nm)
INTRAcel	Fractional RF	N/A	Up to 78.4 J/cm ²	5 – 1,000 ms	small handpiece: 34 x 8 mm spot size. Contact cooling (below 0° C). Invasive tip (FRM) and non-invasive tip (SRR). Bipolar and
ULTRAcel	Microneedling Multi-Functional Platform (HIFU / Fractional RF Microneedling / Grid Fractional RF)	N/A	Up to 3 J / up to 12 – 60 W / up to 200 W	10 – 100 ms / 60 – 2,000 ms / 0 – 2 sec	monopolar available. HIFU: B cartridge (depth: 3.0 mm); C cartridge (depth: 4.5 mm). FRM: FRM tip; SRR tip. GFR: large (15 x 15), small (7 x 7) tip.

ACNE TX DEVICE COMPARISON CHART

Supplier Product Name	Device Type	Wavelength (nm)	Energy Output (Joules)	Pulse Length	Accessories	
Discovery Pico Start	Picosecond Nd:YAG / Picosecond FD Nd:YAG	532 nm / 1064 nm	0.3 J (ps) / 0.6 J (ps); 2 J (μs)	370 ps / 450 ps; 300 μs	Peak power up to 0.8 GW at 532 nm and 1.8 GW at 1064 nm (depending on the model). Exclusive Pico-Boost technology to	
Discovery Pico / Discovery Pico Plus	Picosecond Nd:YAG / Picosecond FD Nd:YAG / Ruby Q-Switched (only for Discovery Pico Plus)	532 nm / 1064 nm / 694 nm	0.3 J (ps); 0.4 J; 0.45 J (ns) / 0.8 J (ps); 0.8 J; 1.2 J (ns); 2 J (µs) / 1.2 J (ns); 2 J (ms)	370 ps; 6 ns; 6+6 ns / 450 ps; 6 ns; 6+6 ns; 300 μs / 30 ns; 2 ms	allow emissions in Pico, Nano and OptiPulse (not for Discovery Pico Start) or microseconds. OptiBeam II technology for flat-top round, square and fractional spots. Spot sizes available: 3, 4.5, 6, 7.5, 9, 10.5 mm round; 2x2, 3x3, 4x4, 5x5, 7x7 (only for Discovery Pico Start) square; fractional round 8 mm. Twain IPL and Twain 2940 options for Discovery Pico and Discovery Pico Plus.	
Youlaser MT (only for acne scars)	CO ₂ / GaAS	10,600 nm / 1540 nm	Up to 600 mJ / up to 160 mJ	0.25 – 20 ms / 1 – 20 ms	Exclusive Mixed Technology to deliver two wavelengths sequentially or simultaneusly. Scanner area 1.8x1.8 cm (max.); microspot of 300 μ m (10,600 nm) and 350 μ m (1540 nm); Stacking Pulse technologies to deliver very short and repeated shots. Various surgical handpieces available.	
Q-Plus - EVO Series	Multi-application platform: Q-Switched Nd:YAG / Q-Switched FD Nd:YAG / Q-Switched Ruby / Pulsed Nd:YAG / Pulsed FD Nd:YAG / Pulsed Nd:YAG (optional) / Pulsed Alexandite	1064 nm / 532 nm / 694 nm / 1064 nm / 532 nm / 1320 nm (optional) / 755 nm	Up to 37.5 J/cm ² (ns); 50 J/cm ² (µs) / up to 15 J/cm ² / µp to 30 J/cm ² (ns); 50 J/cm ² (ns) / µp to 500 J/cm ² / µp to 35 J/cm ² / µp to 120 J/cm ²	6 ns; 6+6 ns; 300 µs / 6 ns; 6+6 ns / 30 ns; 2 ms / 0.3 - 300 ms / 2 - 50 ms / 5 - 10 ms / 0.3 - 300 ms	Rep. rates for Q-switched sources up to 10 Hz, 3 Hz for Ruby and OptiBeam II handpieces for fractional, square and round flat-top spots. Spot sizes for Nano, OptiPulse and microsecond modes: 3, 4.5, 6, 7.5, 9, 10.5 mm round (not with Mixed Mode); 2x2, 3x3, 4x4, 5x5 square; fractional round 8 mm. Pulsed sources with contact skin cooling or Skin Cryo air adaptor, rep. rates up to 10 Hz. Spot sizes available for pulsed 755 nm from 6-16 mm; pulsed 532 nm from 2-6 mm; pulsed 1064 nm from 2-16 mm; pulsed 1320 nm (optional) from 6-10 mm. Q-Plus-Evo Series models: Q-Plus A (Q-switched 532 nm/1064 nm); Q-Plus C (Q-switched 523 pm/1064 nm end 604 nm). Ultralight (Q-switched 523 pm/	
Light - Evo Series	Multi-application platform: Pulsed Alexandrite / Pulsed FD Nd:YAG / Pulsed Nd:YAG / Pulsed Nd:YAG (optional)	755 nm / 532 nm / 1064 nm / 1320 nm (optional)	Up to 120 J/cm ² / up to 95 J/cm ² / up to 500 J/cm ² / up to 35 J/cm ²	0.3 – 300 ms / 2 – 50 ms / 0.3 – 300 ms / 5 – 10 ms	SS2 Init/1064 nm and 694 nm), Ottraight (Qrswitched SS2 nm/ 1064 nm and pulsed 532 nm/1064 nm); Q-Plus Star 1 (Q-switched 532 nm/1064 nm and pulsed 1064 nm/1320 nm (optional); Q-Plus Star 2 (Q-switched 532 nm/1064 nm and pulsed 755 nm); Q-Plus C-MT combines exclusive Mixed Technology Q-switched 532 nm/ 1064 nm and 694 nm. Light-EVO Series models: Light B (pulsed 1064 nm/1320 nm); Light A Star (pulsed 1064 nm/1320 nm; pulsed 1064 nm/1320 nm); Light A Star (pulsed 1064 nm/1320 nm; pulsed	
Duetto MT - Evo Series	Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 120 J/cm ² / up to 500 J/cm ² / see single sources	0.3 – 300 ms / 0.3 – 300 ms / see single sources	(pulsed 1064 nm/1320 nm/532 nm, pulsed 755 nm).	
Thunder Series	Pulsed Alexandrite / Pulsed Nd:YAG / Pulsed Alexandrite + Pulsed Nd:YAG	755 nm / 1064 nm / 755 nm + 1064 nm	Up to 500 J/cm ² / up to 500 J/cm ² / see single soucres	0.3 – 300 ms / 0.3 – 300 ms / see single sources	Skin Cryo air adaptor integrated into laser handpiece and software integrated Qool-air cooling system. OptiShape handpieces based on Optimized Spot. Optional OptiScan TH available, powerful scanner with a max. 29 cm ² scannning area, multiple fill modes and shapes. Thunder Series models: Thunder HR (pulsed 755 nm), Thunder VT (pulsed 1064 nm), Thunder (pulsed 755 nm/1064 nm); Thunder MT (pulsed 755 nm/1064 nm/755 nm+1064 nm). Spot sizes up to 24 mm; rep. rate for both wavelengths up to 10 Hz with OptiShape handpieces and 15 Hz with OptiScan TH. Exclusive Mixed Technology (Thunder MT) allows delivery of both wavelengths simultaneously or sequentially; rep. rate up to 7 Hz with OptiShape handpieces and 10 Hz with OptiScan TH.	
Twain IPL	Pulsed Light	400 - 1200 nm	Up to 25 J/cm ²	5 – 40 ms (pulse train duration up to 240 ms)	Optional handpieces for the EVO Series and Discovery PICO / Pico Plus. Optional skin cooling integrated. Spot sizes: 48x13 mm ² or 25x13 mm ² .	
Twain 2940 (only acne scars)	Er:YAG	2940 nm	Up to 10 J/cm ²	0.3 – 1 ms	Optional handpiece for the EVO Series and Discovery PICO / Pico Plus. Spot sizes available: 2, 4, 9, 9 fractional.	
Sciton						
JOULE	Laser and Light	Various	Up to 400 J/cm ²	0.1 – 200 ms, 1 – 10	Configurable up to ten modules.	
ThermaScan BBLs	Platform Nd:YAG BroadBand Light	1319 nm 420 – 1400 nm	Up to 30 J/cm ² Up to 30 J/cm ²	sec Up to 200 ms Up to 200 ms	Computerized scanner; 30 x 30 mm Tx; integrated cooling. Table top system. SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm and 15 x 15 mm spot sizes, integrated cooling.	
BBL	BroadBand Light	420 – 1400 nm	Up to 30 J/cm ²	Up to 200 ms	SkinTyte II, 420, 515, 560, 590, 640, 695 nm filters, 15 x 45 mm	
Contour TRL	Tunable Resurfacing Laser (TRL)	2940 nm	Up to 40 W	Up to 50 ms	and 15 x 15 mm spot sizes, integrated cooling. Computerized scanner, smart user interface, MicroLaserPeel, Funable Resurfacing Laser.	
Syneron Candela		100 000				
elos Plus AC	Optical Energy / Bipolar RF	400 – 980 nm	Up to 18 J/cm ²	N/A	25 x 12 mm spot size.	
Vbeam Perfecta PicoWay Resolve	Pulsed Dye Laser Picosecond	595 nm 1064 nm	Up to 40 J/cm ² Up to 3.0 mJ	0.45 – 40 ms 450 ps	Eight spot sizes up to 12 mm, including 3 x 10 elliptical and pigmented lesion handpieces. Unique, patented Dynamic Cooling Device maximizes patient comfort and Tx efficacy. 6 x 6 mm; fractional laser; 101 Microbeam array.	

BODY SHAPING TECHNOLOGIES COMPARISON CHART

Supplier	Device	Energy Source	Mechanism of Action	Regulatory Status (Europe and USA)
Allergan	CoolSculpting	Cryolipolysis	Non-invasively reduces fat through Cryolipolysis-based technology. Fat cells are more vulnerable to energy extraction (cooling) than surrounding tissues. A non-invasive applicator is attached to the targeted procedure area to extract energy from the underlying fat tissue, while protecting the skin, nerves, muscles and other tissue. The cooled fat cells undergo apoptosis and are gradually eliminated reducing the thickness of the fat layer.	CE cleared. FDA cleared.
Cutera	truSculpt 3D	Monopolar RF	Non-invasive, monopolar RF system optimized to deliver targeted, repeatable and uniform sculpting of problem areas for a TRU 3D result with no visual downtime. Multi-dimensional approach to decrease circumference and eliminate fat cells, by delivering and holding clinically therapeutic temperatures to the subcutaneous adipose tissue to achieve the clinical efficacy in the shortest pos- sible treatment time with enhanced safety and comfort.	CE cleared. FDA cleared.
Cynosure, Inc.	Smartlipo	Laser Lipolysis	Designed with the 1064 nm wavelength for efficacy and safety. ThermaGuide and SmartSense delivery systems provide real-time	CE cleared. FDA cleared.
	Smartlipo MPX	Laser Lipolysis	temperature and motion-sensing feedback. ThermaGuide temperature sensing cannula and SmartSense accel- erometer for real time feedback. 1064 nm and 1320 nm wavelengths transf fint and capacity usersole. WulliPlay technology	CE cleared. FDA cleared.
	Smartlipo Triplex	Laser Lipolysis	ThermaGuide temperature sensing cannula and SmartSense accelerom- eter. 1064 nm, 1320 nm and 1440 nm wavelengths target fat, coagulate	CE cleared. FDA cleared.
	Cellulaze	Cellulite Laser Platform	vessels and deliver tissue retraction; MultiPlex Technology. ThermaGuide temperature sensing cannula and SmartSense acceler- ometer. 1440 nm wavelength; SideLaze3D side-firing fiber to treat the three core defects of cellulite below the dermis	CE cleared. FDA cleared.
	PrecisionTx	Small Area Laser Lipolysis and Contouring Platform	ThermaGuide temperature sensing cannula. 1440 nm wavelength; SideLaze800 side-firing fiber to treat small areas of fat and underneath the dermis to increase collagen production and skin thickness. Treat	CE cleared. FDA cleared.
	SmoothShapes XV	Non-Invasive Cellulite and Contouring	primary axillary glands under the arm for hyperhidrosis. Proprietary Photomology technology uses a combination of vacuum while emitting both light (650 nm) and laser (915 nm) energy to treat the appearance of cellulite	CE cleared. FDA cleared.
	PelleFirm RF Body Treatment Handpiece	Pellevé S5 RF Generator	RF monopolar tissue heating with integrated massage head for temporary reduction in the appearance of cellulite.	CE cleared. FDA cleared.
	Sculpaure	Diode (1060 nm)	adipose cells for body contouring.	CE cleared. FDA cleared.
DEKA	SmartLipo 6	1064 nm Nd:YAG Laser	Leading lipolisi technology with more than 15 years of experience	CE cleared. FDA cleared.
	SmartLipo 18	1064 nm Nd:YAG Laser	on patients. Customized µPuised No: YAG wavelength provides physiological contractions and elimination of the fat with no inflammatory effects. Controlled photomechanical effect, photo- coagulative action and photo-stimulative course for immediate skin	CE cleared. FDA cleared. CE cleared. FDA cleared.
	Triactive+	Lymphatic Massage; Skin Cooling. Ultrasound; Bipolar and Multipolar RF with / without Vacuum Massage and Skin Cooling.	tightening due to flexible pulse design. Platform includes all available technologies for optimal body shaping. Face and Body Dermodynamic diode laser handpiece with cooling and vacuuming. High and low frequency ultrasound; bipolar and multipolar RF application. RF with / without vacuum massage and skin cooling. Graphic tutorial with automatic selection of parameters	CE cleared.
	ONDA	2.45 GHz Microwave-Controlled Delivery Platform	and proper handpiece. End user protocol storage. Introducing microwave-controlled delivery system for treating adiposities, cellulite and skin laxity. Body cooled handpieces and graphic tutorial GUI with automatic selection of parameters and proper handpiece selection. End user protocol storage.	CE cleared.
Eunsung Global Corp.	Cool Max	Cooling Lipolysis	Non-invasive transcutaneous delivery of cold to selectively and	CE cleared.
	PowerShape2	Multipolar and Bipolar RF, Low	permanently eliminate fat cells. Combined bipolar and multipolar RF, vacuum and low level laser	CE cleared.
	Cool Shaping	Cooling Lipolysis	achieves powerful results. Non-invasive technology uses cold exposure to selectively and gradu-	CE cleared.
	Aurora	Multipolar RF, Vacuum	ally lead to the reduction of subcutaneous fat. Multipolar RF energy induces irreversible thermal damage to adipose tissue by creating directionally controlled electrical fields within	CE cleared.
	3Max Plus	Multipolar and Bipolar RF, Vacuum,	Advanced body sculpting system integrates ultrasound cavitation, RF	CE cleared.
	3Max Coolshaping	Cooling Lipolysis, Multipolar RF, Ultrasound Cavitation	Advanced body slimming system integrates cooling lipolysis, ultrasound cavitation and multipolar RF. Effective treatment for fat and cellulite reduction.	CE cleared.
	Well Spa	Vacuum and Mechanical Massage	Special vacuum suction technology physically stimulates deep into the skin. Two rollers pull up the connective tissues to improve skin folds.	CE cleared.
	Magic Pot	Multipolar RF, Vacuum, LED	RF delivers thermal energy into dermal layer and deep fatty layer in combination with strong vacuum suction technology	CE cleared.
	Magic Polar	Multipolar RF	Applicator delivers RF energy to localized target areas in the dermal and fatty layers.	CE cleared.
	Megason	Ultrasound Cavitation	Non-invasive ultrasound cavitation system delivers energy into the skin without pain.	CE cleared.
	Beauty Pot	RF, Ultrasound Cavitation, Low Level Laser, LED	Applicator delivers RF, utrasound cavitation, LED and low level laser energy to localized target areas in the dermal and fatty layers.	CE cleared.
Fotona d.o.o.	SP Dynamis	Nd:YAG 1064 nm / Er:YAG 2940 nm	Photothermal - heat generated by laser light. Non-invasive fat reduction via photothermal effects combined with non-ablative SMOOTH mode for additional skin tightening.	CE cleared. FDA cleared.

BODY SHAPING TECHNOLOGIES COMPARISON CHART

Supplier	Device	Energy Source	Mechanism of Action	Regulatory Status (Europe and USA)
Hironic Co., Ltd.	Micool-A	Cooling Lipolysis	Cooling energy is delivered to the subcutaneous fat layer without any damage to surrounding tissues. Two Cryolipo handpieces can be used simultaneously.	CE cleared.
	VeraShape	Multipolar RF: 0.5 MHz, Vacuum,	Vacuum-assisted multipolar RF and LED device for obesity care.	CE cleared.
	ByeLIPO SLIMUS	658 nm Diode 1060 nm Diode Laser with Vibration	Low level laser therapy (LLLT) for fat reduction and cellulite removal. High penetration depth of 1060 nm diode laser with minimal absorption in the dermis, effecting subcutaneous fat cells for permanent elimination. The diode laser increases temperature of the target fat to 42°-47° C, which means hyperthemic treatment and interval vibration occurs after the laser energy is delivered, maximizing fat drainage.	CE cleared. FDA & CE clearance in progress.
Jeisys Medical	LIPOcel	High Intensity Focused Ultrasound	Non-invasively reduces fat cells by heating them up to 70° C without epidermal damage via HIFU with contact cooling. Surface temperature maintained at 5° C to reduce pain and deliver high energy. Three different depth cartidges (8, 11, 13 mm) allows treatment of all areas.	
Lutronic	ACCUSCULPT	Pulsed Nd:YAG: 1444 nm (12 W, 300 mJ, 40Hz) Radiofrequency	The 600 µm optical fiber-delivered 1444 nm beam achieves effective interstitial lysis of target adipocytes through photothermal and photomechanical mechanisms. High absorption of 1444 nm in fat and water ensures powerful photothermal destructive effect aided by the tumescent approach, providing safety for overlying tissues through thermal confinement phenomenon. High peak powers and 100 µs pulse width create explosive reaction in the water at the fiber tip, causing cell membrane destruction through photomechanical stress. Ideal for laser-assisted facial contouring and fat deposits on the body. Apoptosis-inducing RF penetrates deep into the tissue, targeting adipocytes. Adipocytes oscillate rapidly causing frictional heat, which raises the adipocyte temperature to 45° initiating cells denaturization. This denaturation causes changes in the integrity of the adipocyte membrane, which leads to apoptosis, with expulsion of the intracellular lipid. The body's natural removal process takes over, permanently removing the damaged cells.	CE cleared. FDA cleared. KFDA cleared. CE cleared. KFDA cleared.
MedixSysteme	SPASHAPE	Fractional Focal Ultrasound and 685 nm Laser	Patented, clinically proven fractional focal ultrasound combined with 685 nm cold laser for biostimulation. Pulsed focal energy disrupts	CE cleared.
	ULTRACONTOUR - U.LIFT	High Focalized Ultrasound plus UMD multi-sequential drainage	fat cell membranes while laser biostimulates immediate drainage. HFU combined with 18 probe UMD for ultrasonic lymph drainage. Pulsed focal energy disrupts fat cell membranes. Multi-sequential ultrasonic drainage stimulates lymph process. U.LIFT is a focal ultrasound probe to treat cellulite.	CE cleared.
	SygmaLift	High Focalized Ultrasound plus UMD multi-sequential drainage, HFU, Tri- Fractional Ultrasound, 635 nm Laser	HFU remodels facial harmony by reducing fat volume in chin and jaw lines, tri-fractional and LLLT smooth crows' feet, nasolabial folds and enhance skin glow.	CE cleared.
	o.onape	combined with 685 nm Cold Laser	biostimulates immediate drainage.	GE cleared.
Sciton	SkinTyte	Infrared Light	Deep dermal heating to stimulate new collagen production.	CE cleared. FDA cleared.
	ProLipo PLUS	1319 nm Nd:YAG / 1064 nm Nd:YAG	Laser-assisted destruction of fat cells and collagen remodeling.	CE cleared. FDA cleared.
	CelluSmooth	1319 nm	Cutting fibrous septae, emulsifying fat and tightening the dermis to improve the appearance of lumpy and dimpled skin.	CE cleared. FDA cleared.
Syneron Candela	VelaShape III	Bipolar RF, Infrared Light, Vacuum and Mechanical Massage	Combined energies known as elos precisely target and heat fatty tissue within Tx area. Vacuum and tissue manipulation evens out	CE cleared. FDA cleared.
	UltraShape Power	Focused Ultrasound	skin to reveal a smoother, tighter figure. Pulsed focused ultrasound technology for fat cell destruction using	CE cleared. FDA cleared.
	UltraShape V3	Focused Ultrasound	mechanical, non-thermal ultrasound for fast painless treatments. Same as above.	CE cleared. FDA cleared.
Thermi	ThermiRF	Temperature Controlled RF	Temperature Controlled RF used in general surgical procedures for	FDA cleared.
	Thermi250	Temperature Controlled RF	electrocoagulation and hemostasis, and to create lesions in nerve tissue. Temperature Controlled RF to provide temporary reduction in the appearance of cellulite.	FDA cleared.
Zimmer MedizinSysteme Germany	ZWave	Radial Shockwave	Unfocused low energy radial waves impact collagen structure and the skin's connective tissue, improving blood circulation and metabolism of fat cells. Effective treatment of connective tissue weakness, stretch marks and cellulite.	CE cleared.
	ZWave Pro	Radial Shockwave	Same as above.	CE cleared.
	ZLipo	Cryocontouring Lipolysis; Vacuum	Targets fat deposits for permanent non-invasive reduction. Cools fat over a longer period of time to a controlled and safe temperature range. Studies have shown that combining Tx with ZWave Pro improves results	r CE cleared.

PRODUCT PROFILES



VECTRA H2

Perfect for imaging the face, breast and body, Canfield's VECTRA® H2 is ideal for facial aesthetics and clinical documentation, providing automated image stitching and realistic 3D results. With the H2, the patient's images are used to explore possible surgical and non-surgical outcomes, share options, explain limitations and set appropriate expectations. Completely self-contained with integrated flash and converging ranging lights for fast, reproducible imaging, the H2 is ready to go with minimal staff training.

Canfield Scientific: +1 973 434 1201 / +1 800 815 4330 or visit www.canfieldsci.com



ZLipo

As you would expect from a world leader in cryotherapeutic solutions, ZLipo is based on the latest research and technology. High functionality and modern design meet all requirements of an innovative practice. Two holders on the outside of the device are convenient spots for handpiece storage. In addition, a tray on top of the device is perfect for accessories, etc. The sophisticated design makes it easy to reach all areas selected for treatment.

Zimmer MedizinSysteme: +49 731 97 61 291 or visit www.zimmer.de or www.zimmer-aesthetics.com



Ultracontour

Ultracontour[®], an advanced ultrasonic device for body contouring, features two focal transducers – one dedicated to fat (UC HIFU), the second for cellulite (U.Lift) – combined with 18 ultrasonic probes for lymphatic drainage (UMD). This system is completely non-invasive and internationally patented with CE medical accreditation. With no consumable transducers and a complete treatment taking only 45 minutes, Ultracontour saves time and money. The fat removal efficiency has been scientifically proven by sonography in compression.

MedixSysteme: +423 3730440 or visit www.medixsysteme.li



Discovery Pico Series

Discovery Pico Series is the second generation picosecond Nd:YAG laser for tattoo removal, pigmented lesions and skin resurfacing / rejuvenation treatments. This laser series includes up to three wavelengths: 532 nm, 1064 nm and 694 nm (Discovery Pico Plus), high peak power (up to 1.8 GW) and four emission modes to achieve maximum operating performance for the widest range of treatments.

Quanta System SpA: +39 0331 376797 or visit www.quantasystem.com



enlighten

enlighten SR is a new, novel picosecond platform, featuring two proven technologies: 532 nm and 1064 nm, along with high pulse energy for safe and effective treatments on unwanted pigmentation and skin revitalization concerns. Expand applications to include scarring, fine lines and wrinkles, as well as difficult-to-treat skin concerns with enlighten SR's PICO Genesis FX treatment, a fractionated picosecond therapy offering exceptional results in just a few short sessions.

Cutera: +1 415 657 5500 or vist www.cutera.com



StarWalker

Combining four complementary laser wavelengths and the widest range of aesthetic procedure modalities, the StarWalker functions as a highly versatile, multipurpose Q-switched laser system for safe, minimally invasive pigment, vascular and collagen treatments. Its third-generation technology provides high power and treatment capability (up to 10 J of Q-switched energy) in an advanced, compact and award-winning design. StarWalker's energy, four colors and proprietary FracTAT[™] procedure also make it an industry leading tattoo removal laser system.

PRODUCT PROFILES



ThermiRF

ThermiRF[®] is a platform technology that combines temperature control with advanced realtime temperature monitoring to enable various minimally and non-invasive aesthetic applications. The temperature control capability of ThermiRF allows physicians to customize the selected therapeutic endpoint for each patient.



THUNDER SERIES

This cutting-edge laser offers up to two wavelengths – 755 nm and 1064 nm – in single or combined emission via proprietary Mixed Technology. This combination represents the new gold standard for hair removal, dermatological vascular lesions and skin rejuvenation treatments. A new Optimized[™] spot shape is designed to overcome the limits of overlapping traditional spot shapes. This platform can be also equipped with a brand new scanner OptiScan TH. This option takes advantage of its AutoMotion[™] Technology to allow a wide range of tailored and automatic treatments with maximum patient comfort.

Quanta System: +39 0331 376 797 or visit www.quantasystem.com



SP Dynamis

This all-in-one, anti-aging laser platform, allows fast, precise and efficient procedures with reduced recovery times. With fully customizable settings, the system offers true third-generation Er:YAG resurfacing. The Nd:YAG wavelength is a gold standard for hair removal, rejuvenation, acne, pigmented and vascular indications. Nd:YAG scanner compatibility further enhances treatment speed, safety and efficacy, especially for large application areas. The SP Dynamis combines popular aesthetic treatments with additional minimally-invasive surgical procedures (laser lipolysis, hyperhidrosis treatment etc.).

Thermi, an Almirall Company: +1 866 981 5017 or visit www.thermi.com

Fotona: +386 1 500 91 26 or visit www.fotona.com



PLASONIC

PLASONIC is an incomparable solution-delivery technology combining plasma (PlaPass) and ultrasonic (SonoPass) energy in one system. Plasma ions are emitted at an invisible size of 20 to 50 µm, which transfers the energy into the skin. The solution is dissolved in the skin temporarily as cell adhesion molecules break due to the plasma effect. Next, SonoPass produces physical pressure on the particles and helps them absorb into the deeper skin layer. With this Drug Delivery System (DDS) technology, aestheticians can provide a wide range of customized premium programs.

Hironic: +82 31 525 7400 or visit www.hironic.com



NCTF BOOST 135HA

This unique, professional, anti-aging, poly-revitalizing solution nourishes the dermis by providing the ingredients that it needs to thrive and creating the optimal environment for fibroblasts, which are responsible for the production of collagen, elastin and hyaluronic acid. Its formula combines free hyaluronic acid and an exclusive complex of vitamins, antioxidants and minerals*. NCTF[®] BOOST 135HA is part of skin quality and skin replenishing medical protocols with proven clinical results.**

* Non exhaustive list.

** Study of the anti-aging efficacy of a new protocol combining a light peel, NCTF BOOST 135HA and B3 Recovery cream, on the face, 2018. Comparative, randomized split-face, single center clinical trial. Ten healthy volunteers included.

FILLMED by FILORGA: +42 93 94 00 or visit www.fillmed.com

SmartXide² DOT/RF

The new SmartXide² DOT/RF system offers unsurpassed flexibility and control. Utilizing DEKA's proprietary Pulse Shape Technology (PSD[™]), a complete array of pulses are selectable upon necessity. Stack technology, plug and play accessories and computer-based protocols complete this state-of-the-art platform. SmartXide² DOT/RF provides less downtime, less intraoperative and post-op pain, and excellent skin tightening with a bi-polar RF scanner, as well as vulvovaginal reshaping.

> DEKA: +39 055 88 74 942 or visit www.dekalaser.com

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The aesthetic product range

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NEW



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THERMIVA® Empower a NEW you

What is ThermiVa®?

ThermiVa is a non-invasive application that uses controlled radiofrequency energy to gently heat vulvovaginal tissue. The application can be performed on either the ThermiVa or ThermiRF® device, which has temperature control capability, making it possible to customize the selected therapeutic temperature.

- Non-ablative
 - No anesthesia required
 - In-office procedure
 - No downtime
 - Little to no discomfort* *Results may vary

Vulvovaginal changes

may happen through all stages of life. Help your patients feel empowered to start the intimate conversation.

1 1 1 5 1 1 1 10

ThermiVa disposable electrode (actual size)

ThermiVa device is intended for use in dermatological and general surgical procedures for electrocoagulation and hemostasis. Important ThermiVa Safety Considerations: Thermi[®] Radiofrequency products should not be used on patients who are pregnant, have fever or skin infection in or around the area of treatment. Treating physicians should beform required testing to confirm patient is negative for infection or pregnancy. Patient should be awake and monitored during the procedure for any unexpected symptoms. Expected procedure side effects may notube transient pain in procedure area, environment and edema.

Individual patient results may vary. Models not actual patients: © 2017 ThermiGen, LLC. All rights reserved. MC-AD-TVA-03 Rev A

