



WORLDGATE
Medical & Lab. Supplies

HIFU skin lifting
and body contouring

UTIMS



About KORUST

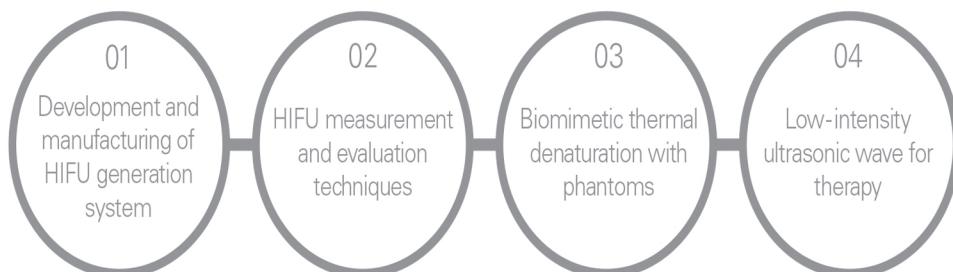
KORea Ultra Sound Technology Co., Ltd

KORUST is the Company oriented development of medical devices for human respect, corporate social responsibility, moral obligation rather than just for the pursuit of profit by producing, always seeks to realize value creation towards competitiveness through continuous technology development and new technology driven.

KORUST keeps developing innovative products with domestic academic basic research, commercialization of HIFU technology and assessment techniques based on the ultrasonic generator, ultrasonic ceramic transducer, High-intensity focused ultrasound technology, focused shock wave technology commercialization in the field of therapeutic ultrasound.



Main technical Research



Technical cooperation network with Institutes

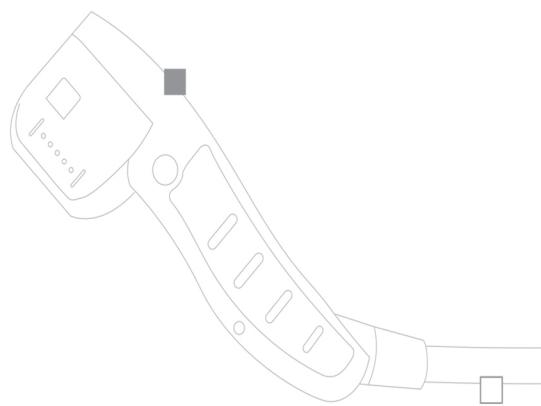
Institutes

Yonsei University
Ajou University
Inha University
Jeju National University

Cooperation Field

Ultrasound for ophthalmology
Ultrasound For restoration of cartilage
Studying cells of Ultrasound for therapy
Scientific basic study and measurement, evaluation

What is HIFU?

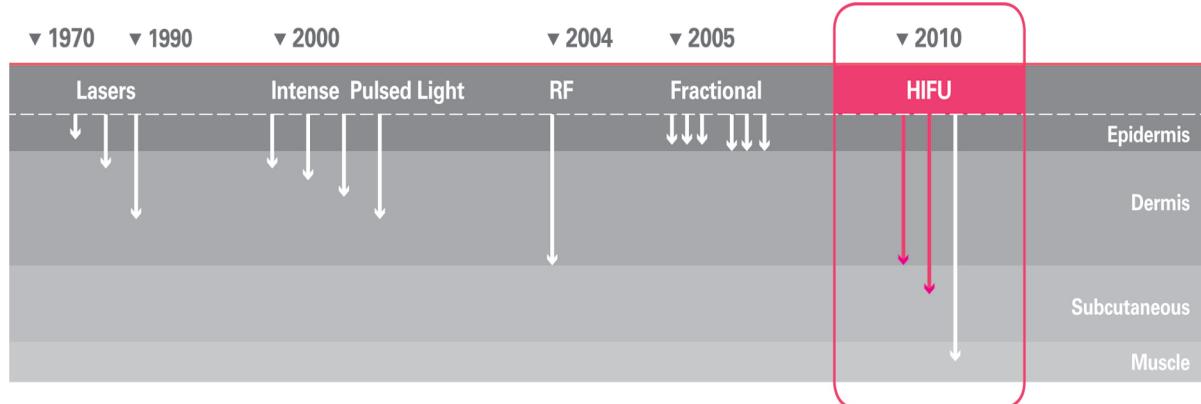


► Ultrasound

Ultrasound is an oscillating sound pressure wave with a frequency greater than the upper limit of the human hearing range. Ultrasound is thus not separated from 'normal' (audible) sound based on differences in physical properties, only the fact that humans cannot hear it. Although this limit varies from person to person, it is approximately 20 kilohertz (20,000 hertz) in healthy, young adults. Ultrasound devices operate with frequencies from 20 KHz up to several gigahertz. Ultrasound is used in many different fields. Now days, Ultrasound is mainly used for skin lifting/Removing adipose tissue/cancer treatment. The Ultrasonic wave effects are as below.

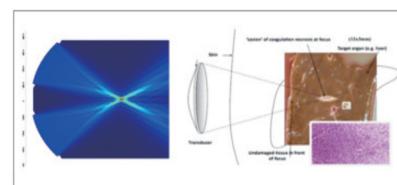
- 1) Mechanical Effect
- 2) Cavitation Effect
- 3) Thermal Effect : Ultrasonic wave is transferred to the tissues and absorbed whereas the energy is turned to the heat.

● Technology Evolution from Lasers



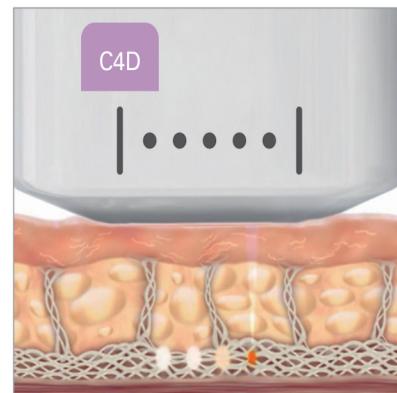
► High-Intensity Focused Ultrasound (HIFU)

HIFU is a highly precise medical procedure that applies high-intensity focused ultrasound energy to locally heat and destroy diseased or damaged tissue through ablation. Ultrasound beams are focused on diseased tissue, and due to the significant energy deposition at the focus, temperature within the tissue can rise to levels from 65° to 85°C, destroying the diseased tissue by coagulation necrosis. Higher temperature levels are typically avoided to prevent boiling of liquids inside the tissue.



► HIFU treatment mechanism

HIFU is delivered into SMAS(Superficial Muscular Aponeurosis System), fascia, deep dermis and subcutaneous fibrous tissue and generates the temperature increased. When the temperature grows more than 47'C(the threshold of protein denaturation), the coagulation zone is generated. The zone is filled out by the tissue/muscle surrounded and in this moment, the skin muscle gets elastic and the wrinkle is tightened.



UTIMS

Non-Invasive, No downtime
Natural

► Outline

UTIMS is the HIFU system for face lifting and tightening. This non-invasive treatment is operated easily by users and delivers well performance.
Super convenient and very smart item through the verification by lesion valuation analyzer.

► Application

- Skin Tightening and Rejuvenation
- Non-Invasive Lifting for Face
- Body Contouring and Tightening

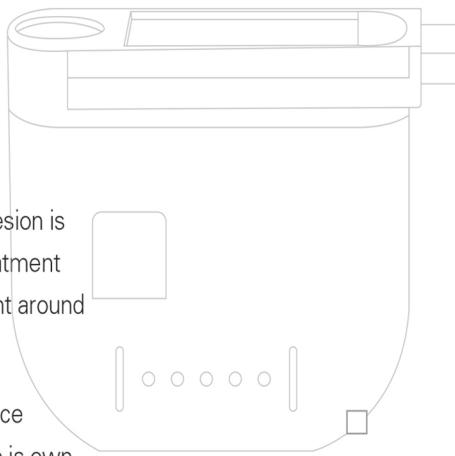




► Strengths of UTIMS

1) High Accuracy & Stable Transducers (HAST)

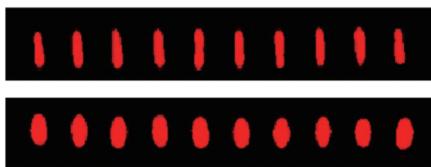
KORUST's Transducer is distinguished by its stability and shape compared to competitors. The heat lesion is shaped like an egg and more focused, which is why UTIMS is able to deliver the safer and better treatment result. Especially, when the heat lesion is long length shaped vertically, it may cause the burn accident around the eyes.



We have successfully produced more effective HIFU transducers for the first time in South Korea since KORUST could overcome technical issues in terms of ceramic manufacturing process. This technique is own by KORUST and KORUST's patent and it delivers the safer treatment and superior quality.

- Stable focal points(heat lesion) and maximizing the treatment outcomes
- Short vertical line heat lesion and safer treatment
- Damage reduction in the deep skin
- Safe treatment with the high strength

● Transducer test on the phantom by Korust



Competitor's Heat Lesion-Phantom

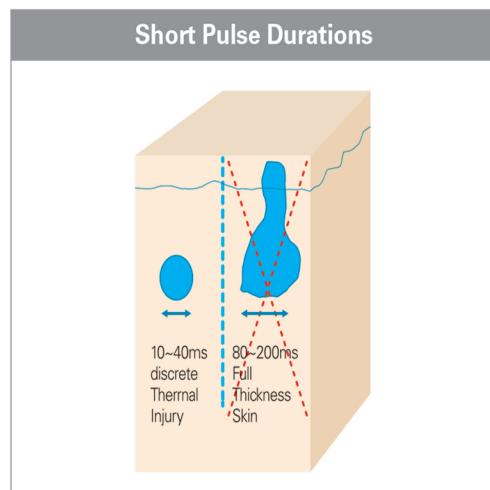
KORUST's Heat Lesion-Phantom

Short vertical line and stable egg shaped focal point

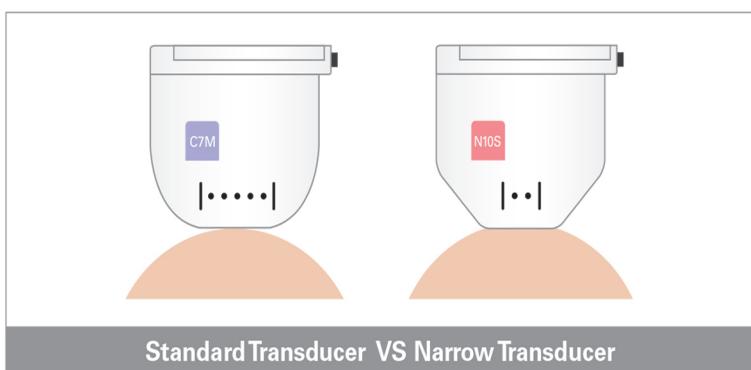
2) High frequency Transducer

High Frequency delivers high energy and delicate heat lesion in HIFU. Therefore, it is a safer and effective idea that the high frequency should be used for the low depth(low skin layer). However, only few companies could success commercialization in the world.

UTIMS provides 10 MHz, 1.5mm depth transducer and 9 types of transducers in total.



● Narrowing in on Usability

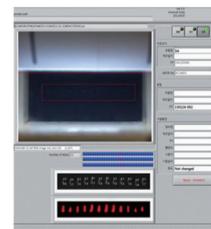


- Reduce time of delivery
- Easier coupling
- Less time per line delivery
- No need to shorten lines
- Improved positioning visualization

3) Transducer Heat Lesion Valuation System (THLVS)

HIFU devices are very dangerous and hard to control. Especially, the excessive energy use of it, the unstable heat lesion cause the side effects such as the burn accident. Therefore, the most important technique of HIFU system is the measurement & evaluation of HIFU Energy. THLVS is the HIFU system developed by KORUST cooperated with an university in South Korea. THLVS is the device which can evaluate the safety of transducers and developed by HIFU professional researchers group for 10 years. Also, the main component of this system called 'Phantom' is produced by KORUST with the strict quality control.

- 1) Safer therapy : Transducers with 100% lot test
- 2) HIFU Test Phantom : Self-developed, manufacturing
- 3) Heat Lesion Simulation
- 4) 3 steps Preliminary inspection



HIFU lesion analyzer



Phantom

4) CENTERLESS HIFU

- 1) Stable focal points(heat lesion) and maximizing the treatment outcomes
- 2) Reduced side effects, such as pain and burns
- 3) Safer treatment



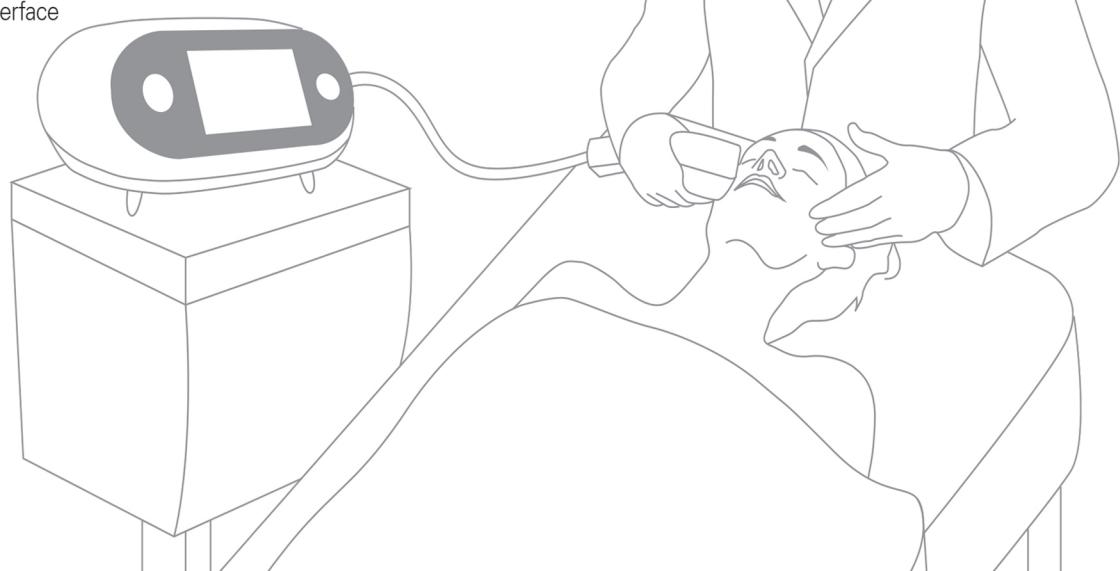
5) Safety strength

- 1) Non-toxic heatless film
- 2) High accuracy & stable transducers (HAST)
- 3) The improved transducer movement
- 4) Precise position control
- 5) Individual control of transducer

UTIMS is
Ultrasonic Therapy
In Medical System

6) Usability strength

- 1) Super easy to use hand piece
 - Thinner transducer and hand piece
 - Sophisticated design for minimalizing of cable interference during the treatment.
 - Double switches (left-handed friendly)
 - Comfortable with transducer desorption
 - 9 types of transducers (A various range of depths & frequency, treatment areas)
- 2) 30mm treatment area
- 3) Time saver : Using a large output transducer
- 4) Simple User Interface



▶ Specification

- Energy Type : High Intensity Focused Ultrasound
- Rated Voltage : AC 100~240V, 50/60Hz
- Power Consumption : 80~150 VA
- Intensity : 0.1 ~ 2.0 J (Maximum ~4.0J)
- Spacing : 1.0 ~ 5.0mm

▶ Transducers

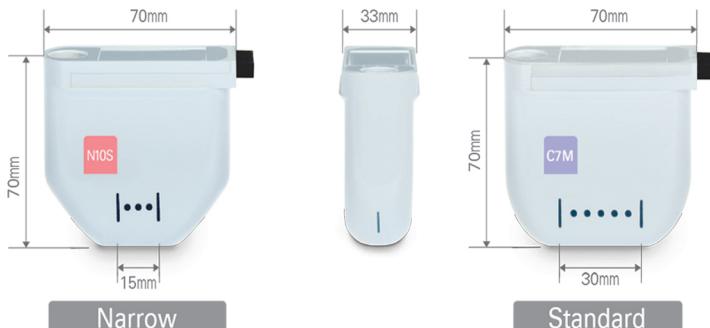
Division	C10S	N10S	N7M	C7M	C7D	C4D	C3N	C3C	C3F
Frequency	10MHz ($\pm 20\%$)		7MHz ($\pm 20\%$)			4MHz ($\pm 20\%$)	3MHz ($\pm 20\%$)		
Length	5.0~30mm (1.0 step)		5.0~15mm (1.0 step)		5.0~30mm (1.0 step)				
Depth	1.5mm		3.0mm		4.5mm		8.0mm	13.0mm	18.0mm

▶ Dimension

Control Unit (Main Body)



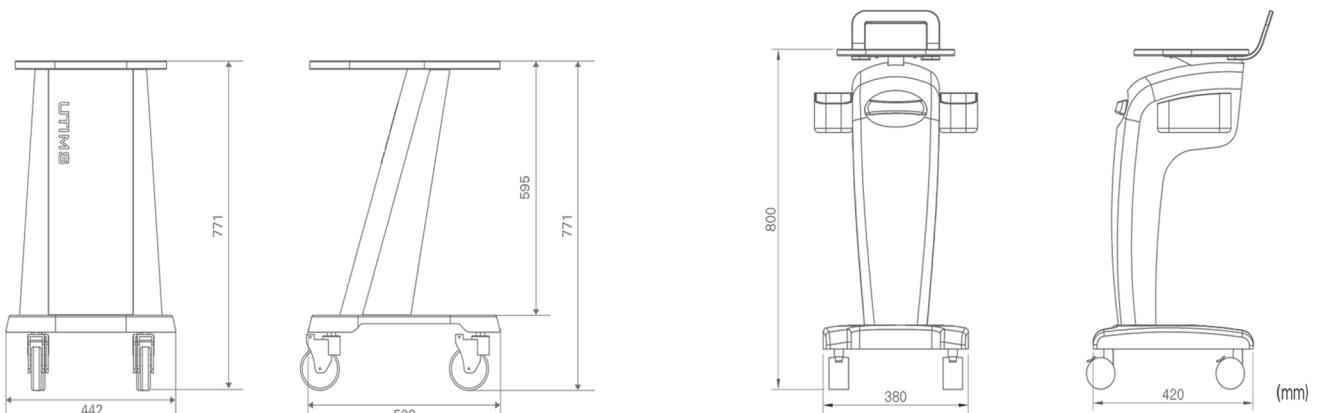
Transducer for Face



Transducer for Body



Trolley (optional)





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