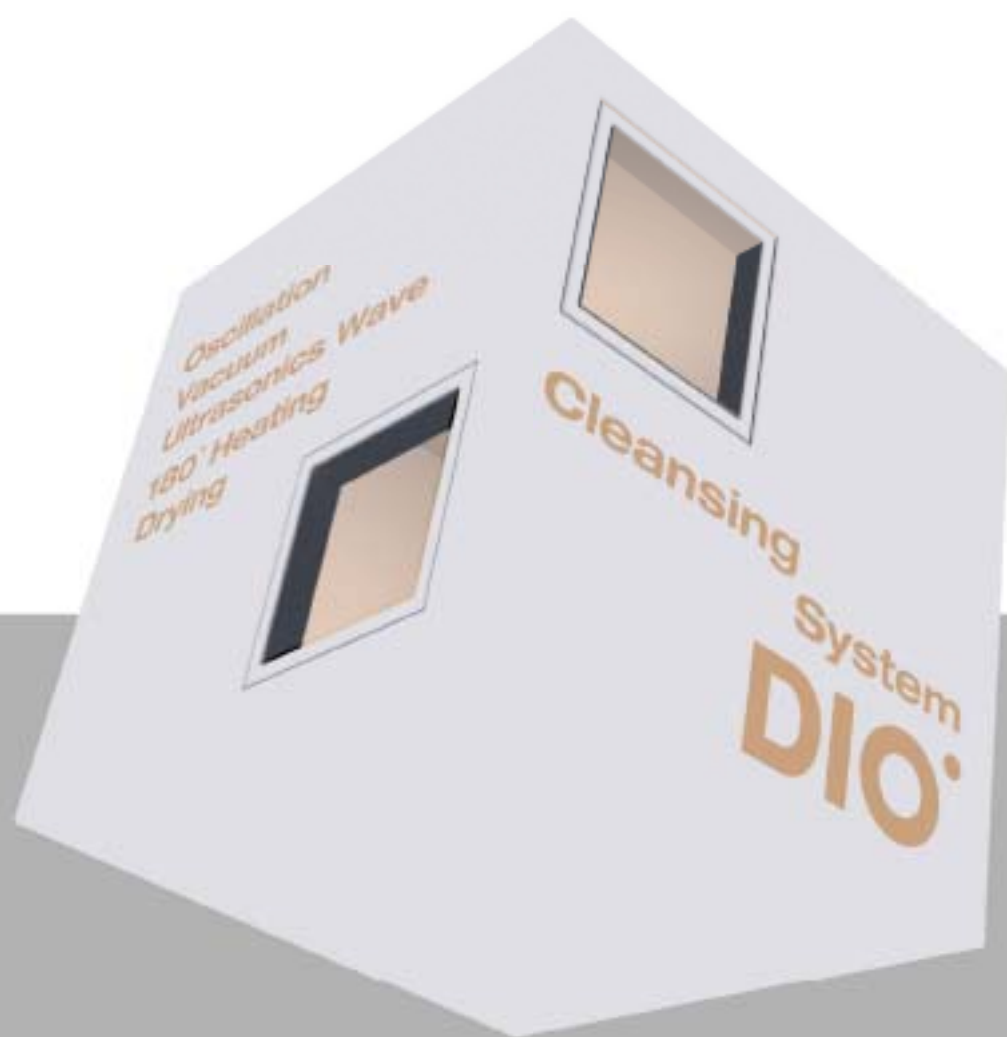


Cleansing System

Oscillation
Vacuum
Ultrasonics Wave
180° Heating
Drying



DIO IMPLANT Production System

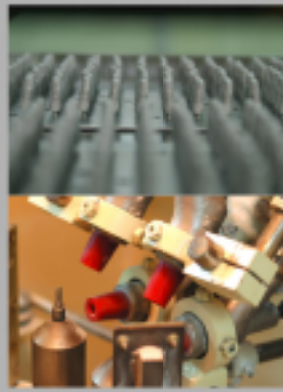
CNC Machining



With state-of-the-art facilities and equipment, any non-conformity is allowed in the machining process of products



Surface Treatment



The surface is blasted with Calcium Phosphate Media of 40-80mesh resulting in even surface roughness of $Ra=1.2 - 1.5\mu m$.



Inspection

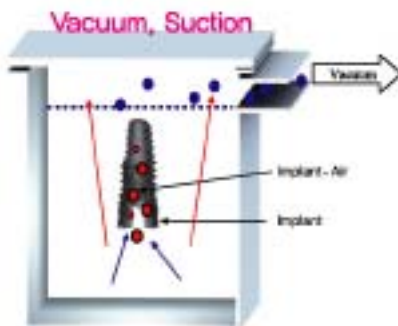
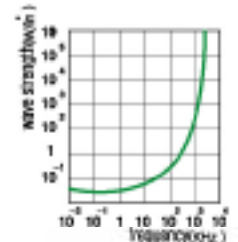
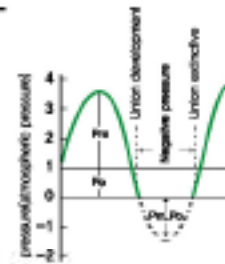


Inspection through non-contact 3 dimensional measuring instruments and stereoscopic microscope increase reliability level.

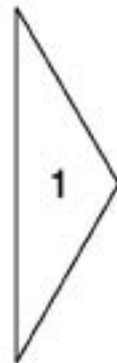
Unsatisfied cleansing may cause inflammation during implant surgery and incomplete drying of implant may cause the bacteria contamination.

- The principle and feature of Oscillation Vacuum Ultrasonic Wave Cleansing -

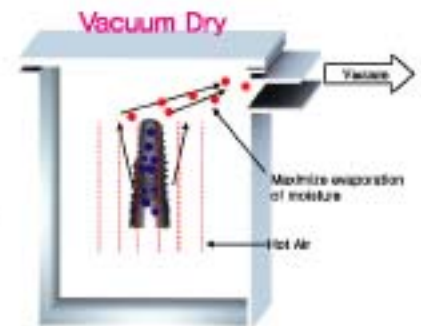
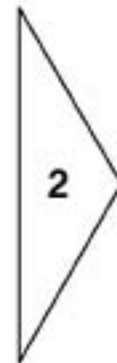
- The principle of Oscillation Vacuum Ultrasonic Wave Cleaning is based on the effects of sound pressure and cavitation, especially cavitation effect plays a main role.
- The cavitation accompanies Micro-Agitation generated from the vibration of air-bubbles, and chemical and heat reaction generated from breaking up of air-bubbles.
- These combined and repeated reactions accelerate the chemical reaction and increase the breakup of attached foreign elements during the cleansing process to complete precise cleansing.



The air remaining within the implant used to be an obstruction, but with this cleansing process, the air is now removed by vacuum and replaced with de ionized water and then ultrasonic is applied to enhance stronger cleansing power.



De ionized water inside the implant delivers vibration generated from ultrasonic to inner surface of implant and optimizes the cleansing effect.



When the cleansing process has been completed, the cleansing water inside the implant is heated to 180 C and then all moisture are absorbed by vacuum to maximize dryness.

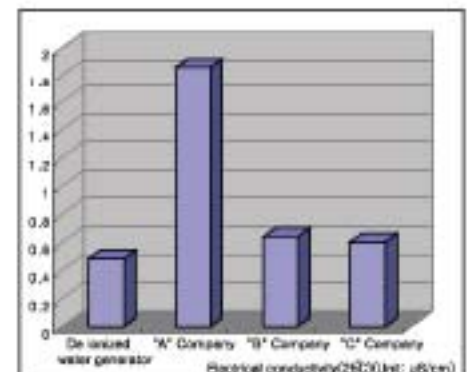
- Inspection of Implant Cleansing Water -

Purified water had been used in the process of implant cleansing like other manufacturers, however DIO IMPLANT has recently applied de ionized water which is produced by the most advanced facilities to achieve the improved cleansing process.

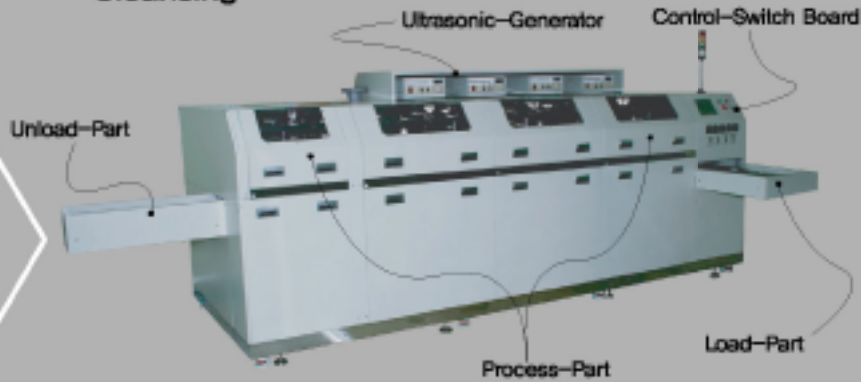
* Test result of Korea Testing and Research Institute for Chemical Industry *

| No. | Brand | Electrical conductivity(25C) (Unit: $\mu S/cm$) |
|-----|----------------------------|---|
| 1 | De ionized water generator | 0.48 |
| 2 | "A" Company | 1.88 |
| 3 | "B" Company | 0.64 |
| 4 | "C" Company | 0.6 |

Standard for distilled water(ASTM) : Less than 2.0



Cleansing



Products through the processes of ultrasonic wave, vacuum dry, and ultraviolet ray sterilization, are ultimately sterile and no residues are remained on surface.

Packing



Products are packed in Clean Room and stored in finished product room after sterilized by gamma ray.

In order to improve the quality of implant products, DIO IMPLANT has adopted and applied this Oscillation Vacuum Ultrasonic Wave Cleansing System for the first time in the implant industry.

– Inspection of the residues on the implant surface –

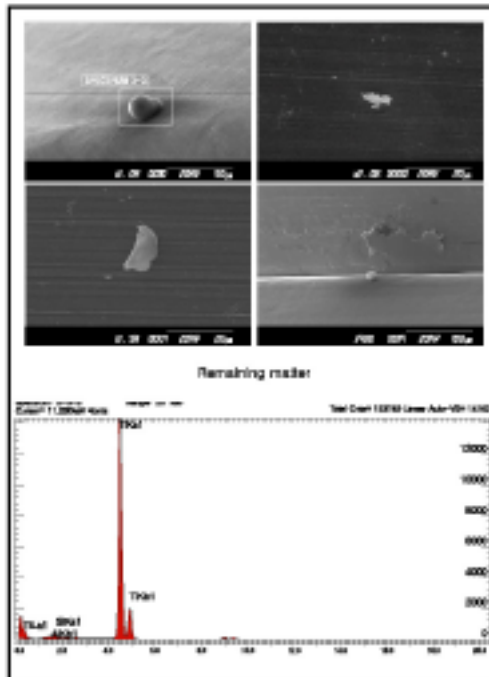
It is a well known fact that the foreign elements on the implant surface obstruct the bio-integration of implant and the gum, and decrease the capability of osseointegration integration. Also they can cause the failure of Osseointegration after the implant placement.

Remaining matter in the surface of dental implant

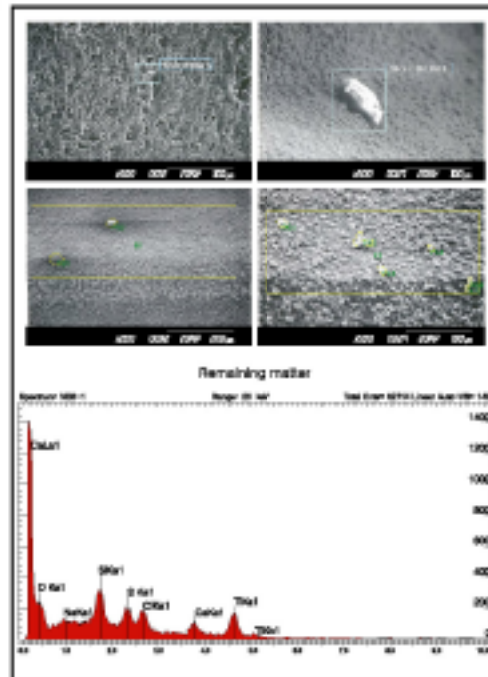
| No. | Maker | Elements of remaining matter(wt%) |
|-----|-------------|--|
| 1 | 'O' Company | C 29.96%, O 12.01%, Na 0.22%, Al 0.51%, Si 0.45%, Cl 0.24%, Ti 56.61% |
| 2 | 'N' Company | S 13.99%, Ca 12.59%, Na 15.36%, Si 21.60%, Cl 14.71%, Ti 21.76% |
| 3 | DIO | Ti 100% |

The surface analysis(SEM & EDS) results of remaining matter with major three dental implant brands are below.

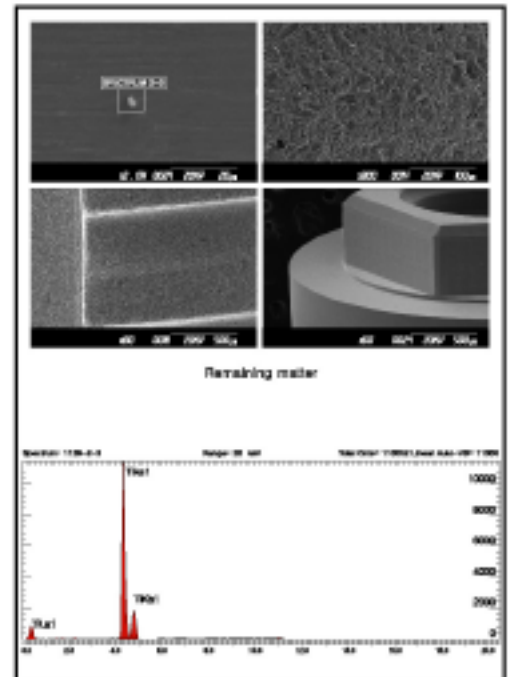
'O' Company



'N' Company



DIO



GOOD



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