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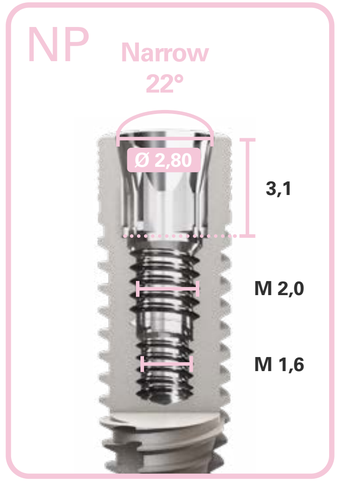
ConicalFIT™
Mini Review

DISCOVER

ConicalFit™ Design (CF)

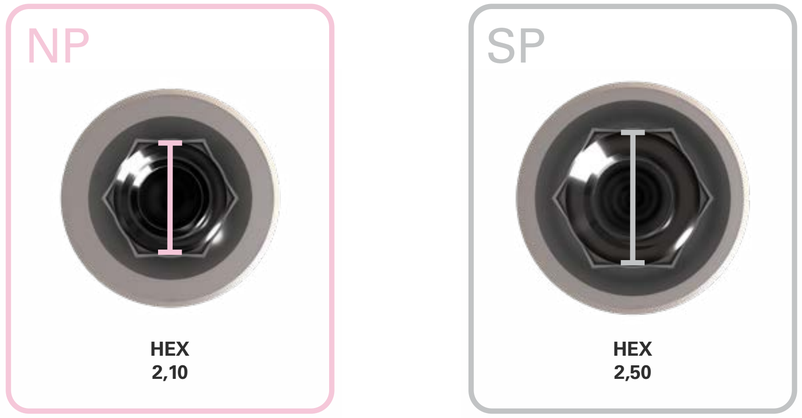
The year was 1864 when Stephen A Morse proposed the idea of a joining two uniformly tapered machine components in a "cone with cone" principle.[1] This concept has been employed in dental implant field as "Morse Taper Connection" and seeks to enhace the mechanical and biological performance of this devices. This internal connection was developed to offer a higher stability between the implant-abutment interface which may reduce the stress concentration in the abutment screw.[2] Likewise, this interface displayed appropriate biomechanical behavior developed to induce lower stress values on the surrounding peri-implant bone.[3] It is known that differences in the implant-abutment interface may affect the potential risk of oral microorganisms colonization.[4] In addition, it was stated that the fit of Morse taper connection decreases the size of microgap at the interface aiming a suitable biologic seal restricting bacterial leakage.[5,6]

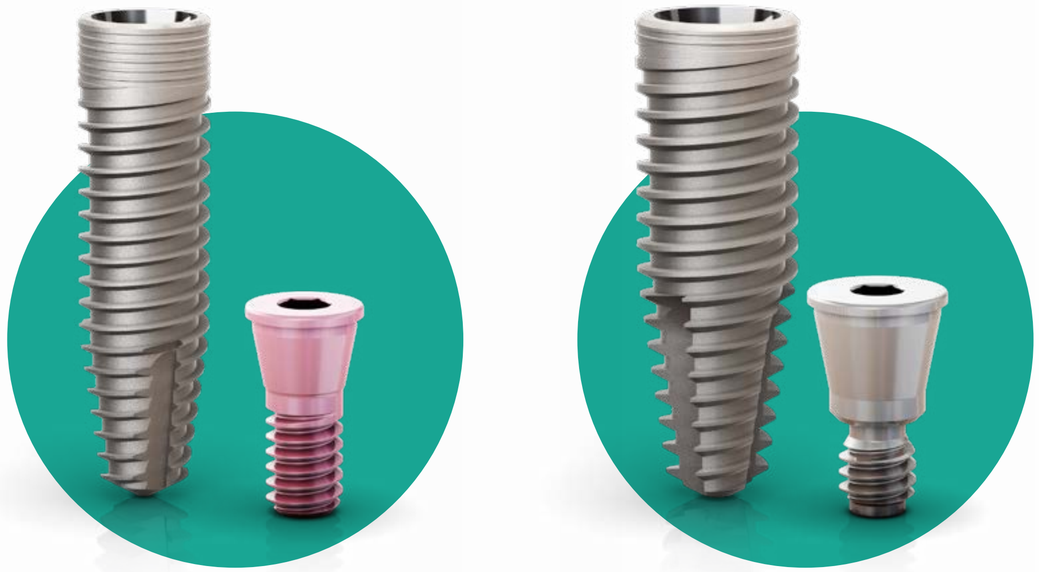


ConicalFIT™ embodied not only the Morse taper interface but also the platform switching concept. This feature, where the abutment is narrower than the implant platform, is suggested to avoid peri-implant bone loss due to the biological width that can be established horizontally, since there is more horizontal space for the soft tissue attachment [7]. A previous clinical study stated that gathering Morse taper connection and platform switching may enable to achieve balanced bone levels in a short to medium period [8]. Also, this association seeks to develop a more adequate relationship between the implant and the abutment and healthier condition to surrounding biological structures [9].

Since modifications on the abutment countour has an impact on improved higher soft tissues esthetics profile [10,11], another important feature of **Conical**FIT™ is the emergence profile created by the abutment. The emergence profile was tailored to respect the biological principles of peri-implant tissue and designed to reach enhanced quality and quantity of soft tissues. A more natural-looking prosthetic rehabilitation may be achieved when the transitioning from a circumferential implant neck to a proper cervical anatomy is considered [12].

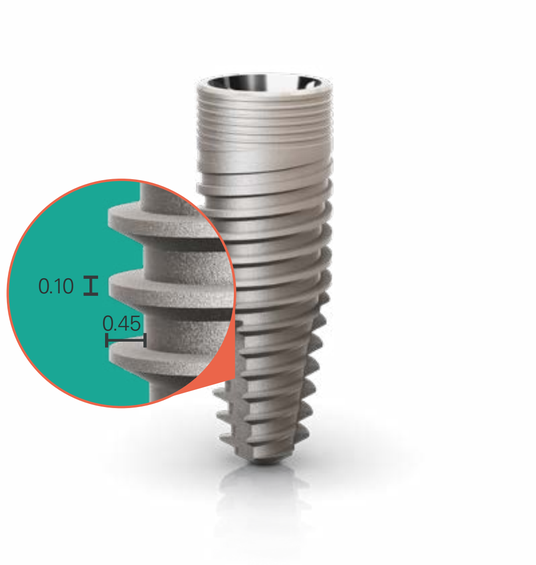
NUVO™ implant system always come with a cover screw regardless of the loading protocol.





Implant Design

NUVO™ system has a double threated, apically tapered implant shape, developed to achieve proper insertion torques with faster insertion, which may provide a primary stability, resulting in more chances of success [7,13,14,15]. Tapered implants have a design similar to tooth roots[16], making it possible to be placed within two teeth. Also, conical implants support a proper implant placement due to the relation between the osteotomy and the implant shape (Figure 1).



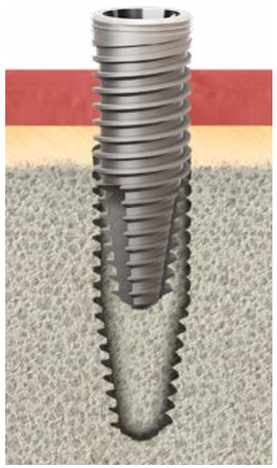


Figure 1: Tapered and conical implant design and its osteotomy.

Tapered implant design requires consequently conical drills and for **NUVO™** a straightforward surgical cassette was developed color coded for a friendly use, with a reduced number of drills (Figure 2 A-B).

The proper insertion torque could be related to the screw thread geometry, which may provide a larger contact area with the host tissue [17], aiming to improve load distribution. These threads are developed to enhance the dissipation of loads at the bone by converting the occlusal loads into more favorable compressive force at the bone interface [18,19,20].

Gathering the macro-geometry of **NUVO™** implants with the correct abutment of choice, seeking to restore function and aesthetic to the patient, in order to provide a suitable treatment.

Figure 2-A: Surgical Kit – NUVO™ ConicalFit™.

Figure 2-B: Narrow (pink) and standard implant driver for hand-piece – NUVO™ ConicalFit™.

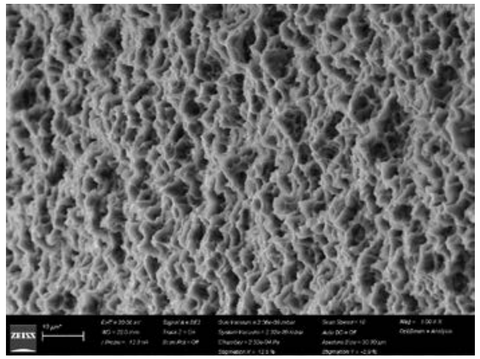
3D Surface

NUVO™ implants have a surface that combines sandblasting and acid etching as presented in Figure 3, which increases the roughness of the implant surface [21-23]. The roughness extends the implant area which may provide great space for cell attachment and proliferation [24]. In addition, when a roughness implant is placed, there is a considerably initial increase in the adsorption of blood proteins on the implant surface [25-27]. These enhance the chances of a positive contact osteogenesis.

Finally, Sandblasted and Acid Etched surface seeks to promote a stable implant anchorage [23] and which may reduce bone loss bone loss [22]. Meeting all these surface characteristics, a higher rate of bone to implant contact area and suitable properties of osseotegration are shown [21-24,28].

Gathering the Titanium G4 and the Sandblasted and Acid Etched surface used in **NUVO™**, these implants are a solid choice for implant material and surface treatment, seeking to achieve favorable results for the treatment.

A



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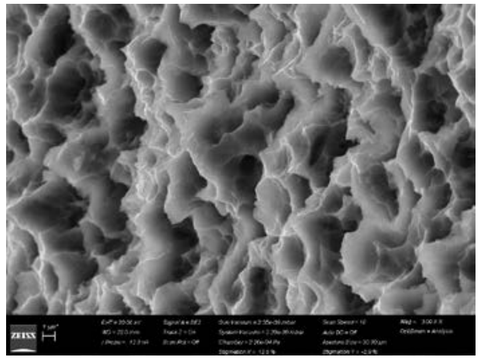

Figure 3: NUVO™'s Sandblasted and Acid Etched Surface. A-Macro topography (600x). B- Micro topography (300x).

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ConicalFit Design Surface References

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