

Conical Seal Design™ – a strong and stable fit

One of the key features of the Astra Tech BioManagement Complex™ is the design of the implant–abutment connection, i.e. the Conical Seal Design™. This design has been part of the implant system since 1985. All available clinical documentation on Astra Tech implants (> 200 published articles), include therefore, results on this key feature. This review focuses on the mechanical and technical literature on Conical Seal Design. For literature about the stable and predictable marginal bone levels, and esthetics, please see Scientific Review on Long-term documentation, on our homepage.

The Conical Seal Design has the inner conus inside the implant and the outer conus on the abutment. The connection between the implant and abutment is located below the marginal bone crest, thus transferring the load deeper down in the bone and reducing the peak stresses in the bone^{1,2}. Since the internal connection is conical and not flat-to-flat, the abutment quickly, simply and nontraumatically guides itself into a predictable and precise fitting³⁻⁵, avoiding the need for X-rays to confirm abutment seating⁶. The tight connection seals off the interior of the implant from the surrounding tissues, which truly minimizes micro-leakage and micro-movements⁷⁻¹⁰. At assessment of clinical stability (i.e. removal of the abutment) there is no smell, indicating lack of bacteria in the junction. Even very small molecules such as endotoxins can be stopped by the effective seal⁹. Abutment screw loosening is a very rare phenomenon and the system has passed mechanical and removal tests without any concerns noted in the literature¹¹⁻¹⁵. Theoretical and experimental studies with various study designs have been performed evaluating the Conical Seal Design^{14,16-23}.

The Conical Seal Design simplifies clinical procedures and helps preserve the integrity of peri-implant tissues. It ensures reliability, function and esthetics in all clinical situations.

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