

Conical Seal Design™

– a strong and stable fit

A key feature of the ASTRA TECH Implant System BioManagement Complex is the design of the implant-abutment connection, i.e. the Conical Seal Design. This design feature has been part of the implant system since 1985, thus all clinical documentation available includes results on this key feature. This review includes technical literature focusing on evaluating the Conical Seal Design, using appropriate methodological set ups.

The internal implant-abutment connection extends below the marginal bone crest, transferring the load deeper down into the bone thereby reducing the peak stresses^{1,2}. The internal cone guides the abutment into a quick, nontraumatic, predictable and precise fitting³⁻⁸ making x-rays to confirm seating unnecessary⁹. The tight connection effectively seals the junction from the surrounding tissues, minimizing micro-leakage and micro-movements¹⁰⁻¹⁵, although, under certain experimental testing milieu, leakage of fluids and bacteria has been reported¹⁶⁻¹⁸.

Abutment screw loosening is a very rare phenomenon and the system has passed mechanical as well as assembly/disassembly tests without any concerns noted in the literature¹⁹⁻²³. Strength evaluations with good results²⁴⁻²⁷ are reported as well as improved endurance²⁸. It has also been shown that the mechanical properties of the Conical Seal Design are influenced by the surrounding bone height²⁹. Many theoretical and experimental studies have further characterized the Conical Seal Design using other methods^{30-41, 42-47}.

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

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