Osstell ISQ Quick Guide

Guidelines for measuring implant stability using Osstell ISQ on Oticon Medical Ponto implants and abutments

ISQ (Implant Stability Quotient) is a measurement scale for use with Resonance Frequency Analysis (RFA) to evaluate implant stability. The measurement is performed by utilizing the Osstell® ISQ and Osstell Mentor stability meters, provided by Osstell. The ISQ values range from 1-100. The more stable the implant, the higher the ISQ value. This quick guide explains how to attach the SmartPeg™ to a Ponto implant or abutment as well as how to measure and record the ISQ values. The final implant treatment decisions are the responsibility of the clinician. For detailed instructions, please see the Osstell User Manual (can be downloaded at www.osstell.com).

The Osstell ISQ meter works by stimulating a SmartPeg™ mounted on the Ponto implant or abutment by emitting magnetic pulses. The SmartPeg automatically resonates in the directions where highest and lowest resonance frequency occurs. To ensure both values are captured, two repeated measurements perpendicular to each other should be performed. Sometimes the two ISQ values are very close to each other, or even the same. The Osstell ISQ instrument has an accuracy of ± 2 ISQ.

It is important to note that the ISQ values measured are dependent on the difference in height from where the measurement is performed relative to the bone. This means that ISQ values measured on different abutment lengths will reflect different values and therefore are not to be compared. In a two-stage surgery this may be of interest as the ISQ value measured directly on the implant will differ from the value measured after placing the abutment. However, measuring ISQ before and after attaching the abutment or before and after the abutment change will reveal the difference in ISQ values.

WHEN TO MEASURE ISQ
Implant stability measurement may be performed at implantation followed by measurements at any time after implantation to determine changes in implant stability. Please note that a high initial ISQ value can initially decrease as mechanical stability is supplanted by osseointegration. A low initial value will in most cases over time increase as osseointegration sets in.

SMARTPEG TYPES
SmartPeg type 9 (100368) can be attached and used on all Ponto implants.
SmartPeg type 55 (100487) can be attached and used on all Ponto abutments with a green ISQ compatible connection screw.
Step 1 Attach the SmartPeg

Attaching the SmartPeg to the abutment using the SmartPeg Mount. The connection should be “finger-tight” (approximately 4-6 Ncm tightening torque). The Ponto abutments (6, 9, and 12 mm) are all delivered with connection screws (green in color) that are compatible with the Osstell SmartPeg.

Step 2 Perform Measurement

Place the hand-held measurement probe close to the SmartPeg at a contact-free distance ensuring that the tip of the probe is pointing at the very top of the SmartPeg magnet. The probe will stimulate the SmartPeg with magnetic pulses, and as soon as the measurement is recorded there will be an audible sound.

Perform the measurement by having the probe pointing in the posteroanterior direction (from back to front of the head). Repeat the measurement with the probe in a superior thus perpendicular direction (from above pointing down) as illustrated in the picture.

Step 3 Record the ISQ values

The ISQ value is shown on the display. Two perpendicular measurements should always be documented; the highest and the lowest ISQ values.

Note: If the ISQ values recorded from two repeated measurements diverge significantly, the measurement should be repeated. Make sure that the SmartPeg is properly attached. Unscrew the SmartPeg and retighten it if required. Also the probe might be at a bad angle, with low signal strength. Try holding the probe at a slightly different angle and make a second measurement perpendicular to the new angle.