

ISO 14801 “Dentistry – Implants – Dynamic fatigue test for endosseous dental implants” specifies the procedure for fatigue testing dental implants. Dental implants are designed by various manufacturers and are of different geometries and sizes depending on where they are placed within the mouth. ISO 14801 aims to establish a benchmark for in vitro testing of implants to compare different implant designs and geometries. It does not begin to replicate the complex conditions implants are subjected to when implanted within the oral cavity.

Instron®’s latest design of the dental implant system is a turnkey solution to meet all of the requirements for ISO 14801 and is ideally suited for use with the ElectroPuls™ E1000 or E3000 test instruments.

Features

- Modular fixture design allows testing of dental implants in or out of fluid, depending on the customer requirements
- Available as a variable angle to suit pre-angled implants
- Unconstrained universal joint as required by ISO 14801
- Compatible with Dynacell™ fatigue-rated load cells, for automatic set up of inertia compensation
- Stainless steel construction for high-corrosion resistance and ease of cleaning
- Compatible with CP108107 fluid bath and CP106108 temperature recirculator for testing in fluid at 37 °C (98.6 °F)

Principle of Operation

Instron dental implant system was designed to meet the full requirements of ISO 14801. Fixtures are constructed of high-quality stainless steel for ease of cleaning and for high-corrosion resistance when used with optional fluid bath. The implant is secured in place using the preferred method of potting in dental cement. A small screw secures the implant assembly into the fixture. Optionally, a solid insert can also be clamped into the lower part of the fixtures.

The lower t-slot table provides a degree of lateral adjustment when used with larger implants. The variable angle fixture provides adjustment of 0 to 50° for various types of pre-angled implants and mounts to the lower t-slot table. The fixture can be used with CP108107 fluid bath, which includes a push rod to extend the upper platen to a suitable level. The CP106108 temperature recirculator is used to heat the bath to a temperature of 37 °C (98.6 °F) to simulate in vivo conditions. If used with WaveMatrix™ Software for fatigue testing, the test temperature can be automatically controlled and monitored during the test.

Optionally, the lower t-slot table and bath can be combined with the 2810-600 3-point bend fixture and 2810-605 4-point conversion kit for testing of restorative and prosthodontic dental materials to various international standards.



Test Instrument Capability

The dental implant system is primarily designed to be used with an ElectroPuls™ E1000. It is also compatible with ElectroPuls E3000 & E10000 systems.

Specifications

Catalog Number	2014-107	
Description	-	Variable Angle Fixture
Applications	-	Straight and Pre-Angled Implants
Compression Angle	-	0 - 50° Adjustable Angle with Precision Markings
T-Slot Table Adjustment	mm	-20 to +40 Precision Markings for Accurate Setup
Dimensions (HxWxD)	mm	75 x 130 x 100
Specimen Interface	-	Ø 15 x 19 Deep Recess for Specimen Potted in Dental Cement
Upper Platen Interface	-	M6 Female Thread (Requires 8000 - 127 Attachment Kit)
Lower Base Interface	-	4 x M6
Maximum Force	N	3000

Note: For standard machines

Products

2014-107	Variable Angle
CP108107	Fluid Bath (2 liter)
CP106108	Temperature Recirculator
2810-600	3-Point Bend Fixture
2810-605	4-Point Conversion Kit



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