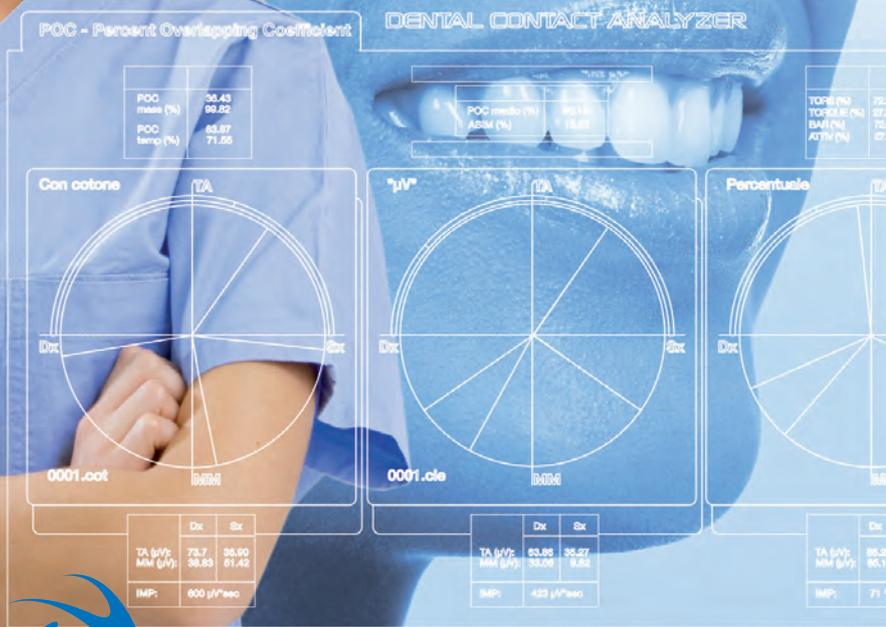


BTS TMJOINT

Solution for the functional analysis of dental occlusion



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Planning and assessing the effectiveness of all dental interventions, including the use of a bite, dentures, or an orthodontic treatment, requires an objective analysis of the stomatognathic system, both in terms of morphology and function: the neuromuscular system becomes the reference on which to construct prostheses and rehabilitation interventions, with the primary objective to establish the correct relationship of the dental arches to each other.

The modern dentistry practice has proved how the morphological principle must work together with the functional principle: the correct tooth alignment, for example, has aesthetic reasons that often aren't correlated to the function. The instrumental analysis allows the functional evaluation of the occlusive and masticatory status, providing all the essential information to solve the patient problems correlated to the malocclusion.

An oral appliance (OAs) well-designed, produces a correct balance of the neuromuscular system with the result of relaxing or change effectively the maxillofacial muscle tension for craniomandibular dysfunctions.

BTS TMJOINT, through the static and dynamic analysis of the masticatory muscles, expression of the occlusive contact quality of teeth or OAs, provides information on the shape corrections to apply.

BTS TMJOINT uses surface electromyographic analysis to measure the differential influence of the occlusal function through indices validated and published in scientific literature. Functional information is provided on the neuromuscular alterations induced by occlusal contact. Special feature of this system is the standardization of the electromyographic signal that is provided by the comparison between two test of clenching, done with and without the interposition of cotton rolls between the dental arches. This method allows the elimination of problems of the wrong positioning of the electrodes, of the difference of impedance of the patient's skin, of the differences of muscular tropism, ecc. making it accurate and repeatable. The results are shown via a special graphic interface that is easy to understand for both the physician and patient.

BTS TMJOINT is a modular and scalable solution, structured on various levels of analysis. The first level, called POC4, includes 4 capture probes and the analysis protocol. Through a quick 5 second clenching test, in which the activities of the masseter and anterior temporal muscles, right and left are acquired, it provides, as an immediate result, a POC percentage overlapping coefficient (an index of the symmetric distribution of the muscular activity determined by the occlusion) and a TORS torque coefficient (to estimate the possible presence of mandibular torque), which makes it possible to establish the role of occlusion on muscular balance. A third index, called IMPACT, allows to evaluate the muscular work, providing information about the occlusal vertical dimension.

The second level, called POC6, adds to the previous 2 capture probes for calculating the indices related to the sternocleidomastoid muscle, right and left. The effects of the teeth touching, on the neck muscles are evaluated.

The third level, called MASTICATION, analyses the neuromuscular coordination during mastication. The masticatory frequency, the Lissajous curve, and indices of muscle symmetry are calculated.



BTS TMJOINT integrates the latest wireless technology available today. Based on wireless technology, this solution includes a set of EMG probes with active electrodes weighing less than 9 grams, a USB receiving unit and the dedicated software BTS Dental Contact Analyzer.

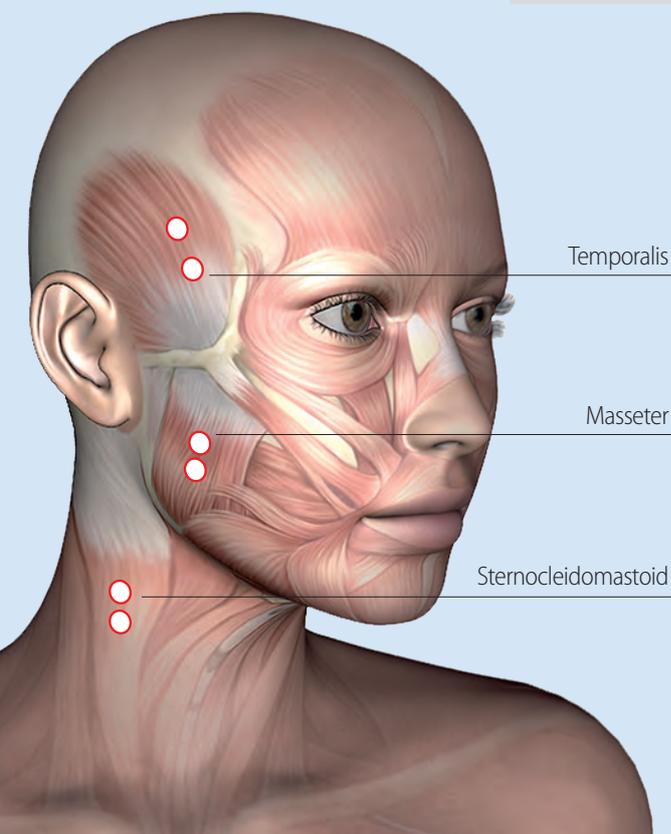
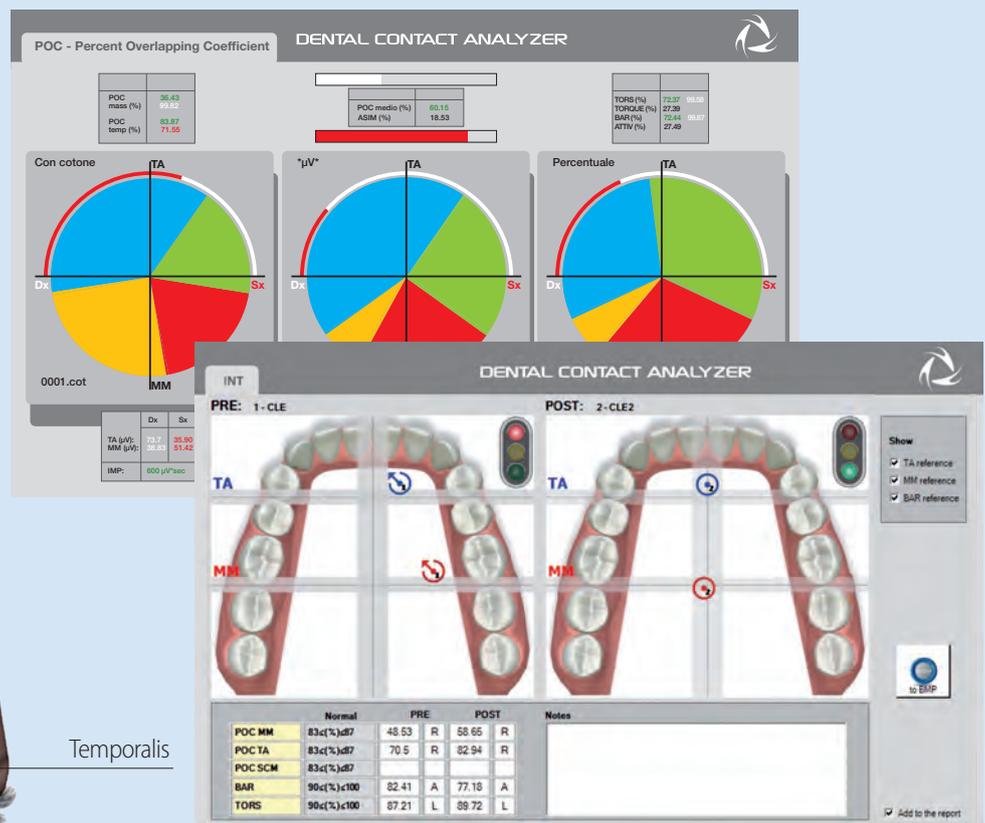
The total absence of wires allows a quick subject preparation. The probes' extremely reduced weight and compact size provide maximum comfort to the patient ensuring total freedom during the movement. The high sample rate and the 16bit resolution ensure a high quality of captured signals.



Miniature wireless probes
BTMS TMJOINT uses next generation EMG probes, the only one of its kind in the world due to its light weight, compact size, and data capturing accuracy.

BTS Dental Contact Analyzer

BTS TMJOINT is provided with Dental Contact Analyzer: specialized software for the automatic indices calculation, plotted in a table form, with pie charts and histograms. Includes patient database compatible with Microsoft Access and SQL Server.



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Technical features and equipment *

Wireless probes

Surface electrodes	Surface electrodes with variable geometry and clip connection
Resolution	16bit
Capture rate	1kHz
Number of probes	4 / 6
Data transmission	Wireless data transmission IEEE 802.15.4 (probes – receiver)
Battery	Chargeable with dedicated charger (clip connector)
Autonomy	5h of continual capturing. Up to 5 days in stand-by mode
Status LED	Capture/ stand-by, low battery indicator
Weight	<9 grams, battery included
Dimensions	23.8 x 37 x 10 master electrode, Ø 16.5 x 10mm satellite electrode
Certifications	Class IIa

USB receiving unit

EMG Channels	Up to 6 wireless probes
Weight and dimension	80 grams - 82x 44 x 22,5mm

Application software Included

BTS Dental Contact Analyzer
POC4 or POC6 protocol (depending on the configuration)

Accessories included

Charger station
Electrode set
Aluminum carrying case

Optional

Pre-configured ready to use laptop
Chewing Protocol



User PC minimum configuration**

Operating system	Windows 7
Processor	Intel Dual Core
RAM	2 GB
Video resolution	1280x800
Disk space	100 MB for the application, not including storage for acquired data
USB	2.0

* Technical features and equipment may be subject to change without notice.

** The PC is not included in the standard equipment. BTS TMJOINT is compatible with PCs that meet the requirements indicated in the table.



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