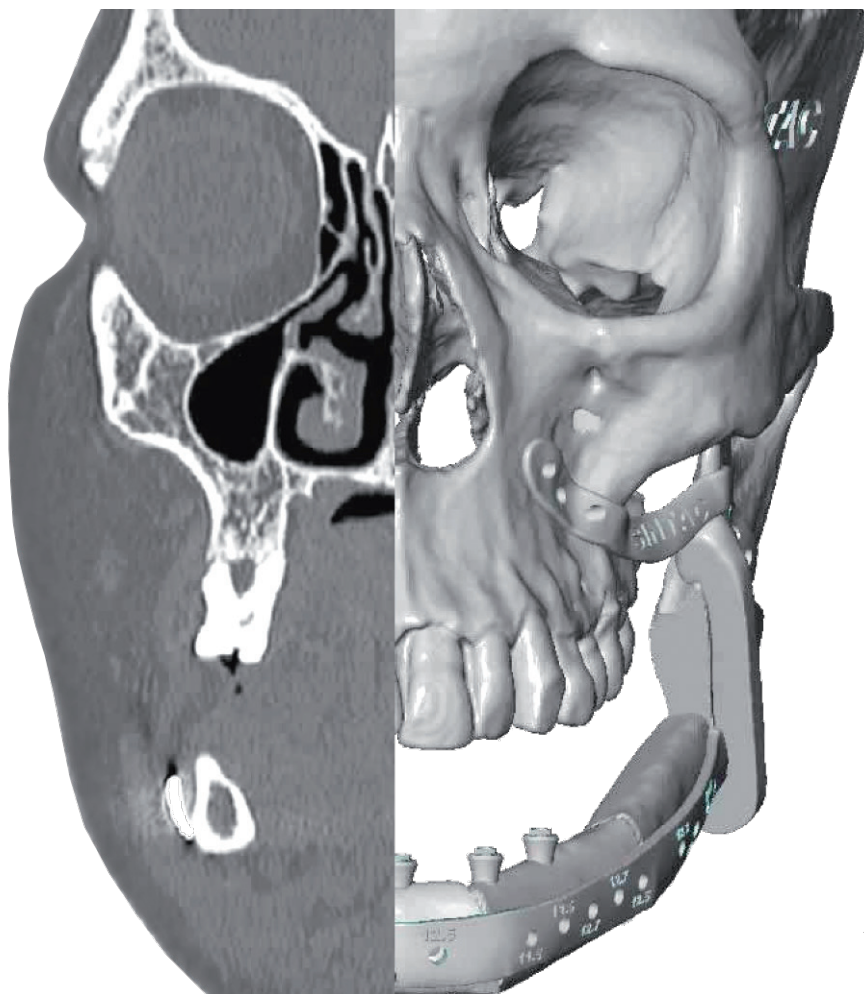


NEW TECHNOLOGIES AT THE SERVICE OF MODERN SURGERY

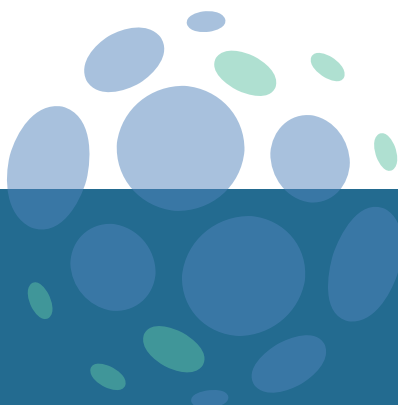


From the bio-image  to the custom-made implantable prosthesis

Starting from a CAT scan (Computerised Axial Tomography) or a Nuclear Magnetic Resonance (NMR) and with the use of innovative software design applications of CAD-CAM to obtain a functional three-dimensional representation as a basis for design, implement and test a prosthetic implant totally customized.

Choose and present the ideal surgical technique, with the same methodology, to colleagues, collaborators and to the Patient: this is the goal that SINTAC offers to its Clients.

The particular specialization on these issues ranks SINTAC among the pioneers in the field of rapid prototyping/manufacturing in the biomedical field. The results obtained indicate that this path will lead to a significant improvement in the quality of life of the patients and unimaginable advances in the surgical techniques.



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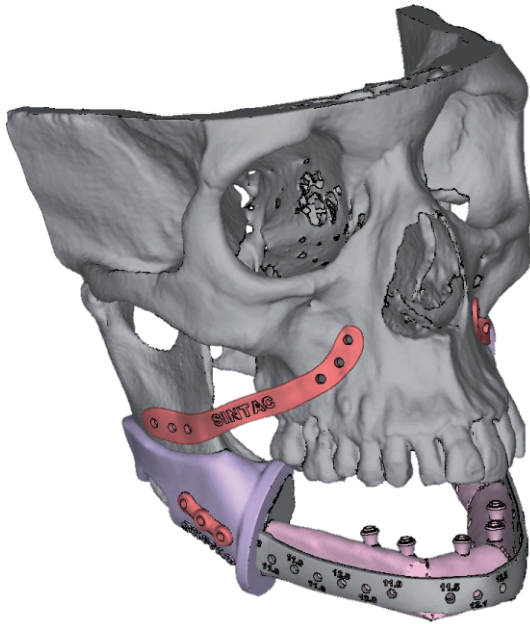
*Modern surgery becomes art.
The prosthesis become precious works*

”

Specialized Solutions

We offer tailored solutions to the patient as anatomical replica, cutting guides in cobalt-chrome or polyamide and plates or personalized prosthesis in titanium / cobalt chrome.

All the solutions grow out from the research and the reprocessing of the data obtained from CAT scan, or magnetic resonance or three-dimensional surface scan. From these data we obtain a three-dimensional model that permits working on the hypothesis of morphological modification or performing anatomical replicas to be used for both the pre-operative phase of study, and the following one for the realization of surgical guides, regenerating membranes and personalized prosthesis. The technology of selective laser melting allows, once concluded the phase of data processing and modeling, to create with rapidity and precision different elements that had never been achieved with traditional techniques. The further comparison of post-operative CAT scan and design, allows to analyze the precise conformity between virtual and real helping therefore to ensure, to the clinician but especially to the patient, an optimal and indisputable result, thanks to certain comparative measurements.



three-dimensional CAD design with computerized techniques of the surgery and the prosthesis to be implanted, with creation of cutting template and processing of surgical storyboard



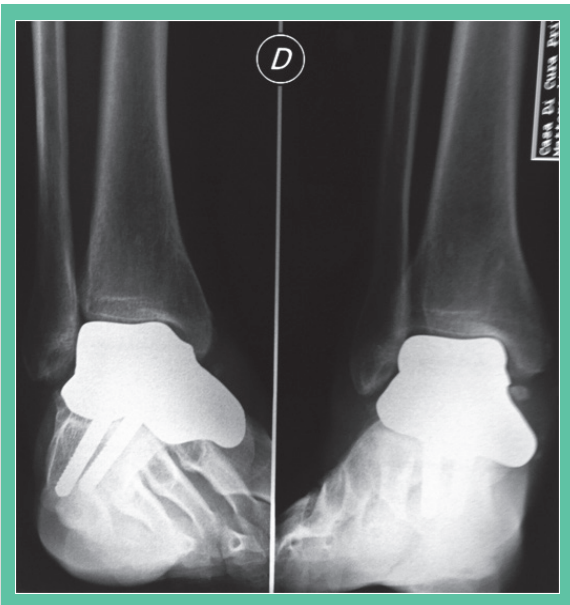
realization with selective laser melting techniques and hand finishing of polyamide anatomical replicas and custom made prosthesis in CoCr and Ti



Benefits

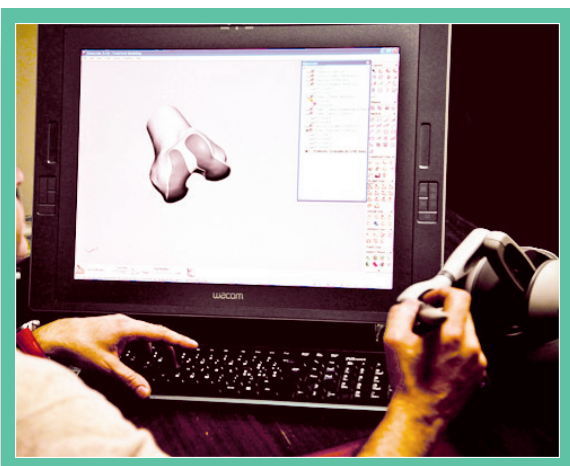
The use of 3D design, custom-made prosthesis and surgical guides imply quantitative and qualitative benefits of various kinds

each case always represents our challenge



the design is achieved by using advanced techniques and software programs

Sintac engineers work in close contact with the surgical team who will carry out the intervention



The use of 3D design, surgical guides and custom made prosthesis imply quantitative and qualitative benefits of various kinds:

- increases in a way hitherto undreamed-of the precision of the intervention due to the perfect **correspondence between the anatomical replica and the patient anatomy**;
- analysis and discussion of the case during the pre-operative study phase are much more accurate and realistic: possible critical situations are detected and **the best solutions are identified** to ensure the success of the intervention;
- there is less need to mould by hand and to cold-working the plates during surgery; operation that weakens the structure of the metal, involves breakage and consequently shortens the life time of the plate necessitating the early replacement;
- the use of 3D design and anatomical replica improve the planning and simulation of the intervention offering a **real and monitored vision of the operative field**;
- the **precision in bone cutting**, essential for the correct reconstruction, improves considerably;
- wounds of the muscle tissues and of lining soft tissues are avoided and protrusions are removed; improves flaring for the screw heads and studies the optimal placement depending on the bio-mechanical seal;
- The contraction of the operating time **reduces both the anesthesiologic risk** for the patient and **hospitalization period** - this results in a considerable cost saving for the hospital;
- the lower invasiveness involves a **reduction** in post-operative **functional recovery** and a **decrease in the physical stress** of the patient;
- decreases the risk of complications and recurrences;
- improves both the aesthetic and the mechanical results;
- it ensures to the patient a **prosthesis technologically advanced and always in the vanguard**. In case of any contentious, this represents an advantage for both the specialist who performed the surgery and for the Hospital that has endorsed the choice of using custom-made prosthetic.



Surgical Kit

In the field of modern reconstructive maxilla-facial surgery, converge both oncological cases and those related to traumas. Currently, the surgeon faces the problem of mandibular and maxilla bone resections while reconstructing bone and tissue removed with free flaps taken from the fibula or iliac crest. To complicate the work and to extend the operating time are the bending of titanium plates and the removal of bone from the donor site.

The plates available today have standard formats and must be modeled in the operating room with a high risk of inaccuracies, often unacceptable for a good result in terms of aesthetics and maxillofacial prosthetic rehabilitation after surgery.

SINTAC proposes a package designed specifically for the patient consisting of: anatomical replica, cutting guides in chrome-cobalt or polyamide and personalized titanium prosthesis. All that made directly with the selective laser melting (DMLS) of the 3D model, and results from the processing and analysis of data derived from computerized tomography or magnetic resonance.



Solutions

our services

- pre/post operative analysis
- 3D modeling
- feasibility study
- dynamic video presentation of the intervention
- storyboard of intervention

our products

- anatomical replicas
- personalized prothesis
- guide/cutting templates

MANUFACTURER

GPI S.p.a.

via Ragazzi del '99, 13 - 38123
Trento (TN)
Tel.: +39 0461 381515
Fax: +39 0461 381599
info.sintac@gpi.it
www.gpigroup.com

EXCLUSIVE DISTRIBUTOR

VER SAN & Dafne m.d. S.r.l

Viale Archimede 25 - 37059
Campagnola di Zevio (VR)
Tel.: +39 045 569949
Fax: +39 045 568190
info@versandafne.it
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