AVINENT®
Digital Health

INNOVATING IN PERSONALISED SOLUTIONS


AVINENT®
Digital Health
At the forefront of custom
medical technologies

EXPERIENCE BUILT ON SUCCESS

Innovation and research, AVINENT's twin foundations

AVINENT is at the forefront of custom digital solutions, thanks to its commitment to scientific research and technological innovation, the two pillars that have supported it during more than 40 years of business experience.

Today AVINENT owes its extensive experience in the medical sector to the development of new systems for guided surgery based on specialized virtual planning software and next-generation scanners.

AVINENT has become a supplier of tailor-made prosthetic solutions, with in-depth knowledge of CAD/CAM technology and of the production of custom 3D printed products. AVINENT's commitment to working with digitized patient information and to ongoing collaboration with the specialist has made AVINENT a world leader in advanced medical technologies.

A CLEAR MISSION

The patient's quality of life, a non-negotiable value

With research and innovation as central axes, AVINENT takes another step forward in its natural evolution and focuses on health problems affecting the whole of the human body.

With AVINENT Digital Health practitioners are able to enter fully into the field of custom medical solutions, the future of medicine that AVINENT intends to make its present. To do this, AVINENT draws on its vast knowledge base in order to offer custom solutions that will improve patients' quality of life.

From the forefront of the digital world, AVINENT still focuses on human health, seeking to offer each patient a unique and exclusive solution to his or her problem.

... because for AVINENT, the future begins today

AVINENT®
Digital Health

A NEW DIMENSION

1 *A system that guarantees the best results*

AVINENT Digital Health is a product line created to provide innovative solutions in multiple cranio-maxillofacial (CMF) fields through the integration of a fully digital and customized process.

The success of the AVINENT Implant System in the world of digital dentistry has made the company an industry leader and forms the basis of AVINENT Digital Health. With a reliable system of new products and tools, it guarantees the best results in cranio-maxillofacial reconstructions.

2 *Customized solutions*

Customizing products and solutions in the field of medical technology provides patients with many advantages since the product is designed and manufactured strictly according to their needs.

3 *Supporting the professionals*

AVINENT Digital Health offers great advantages to professionals. The surgeon has the tools necessary to plan the surgery well in advance and to virtually fine tune how the whole process will develop. This allows better planning of each case and improved surgical practice.

AVINENT DIGITAL HEALTH *offers:*

- Easily accessible patient information via a single digital file (Online)
- Virtual reconstruction of bone defects
- Total control of the production process and logistics
- A wide range of biocompatible materials
- Complete documentation of each step of the virtual planning process
- One integrated and innovative solution that allows complete restoration in reconstructive surgeries, joining prostheses and dental implants for functional reconstruction
- Personal attention always available from a team of dedicated professionals and technicians

Digital workflow: simple, fast, and case specific

The digital workflow system is designed to run in a safe, flexible manner. This system is developed in close collaboration with the doctor and ensures reduced risks for the patient, thanks to personal technical assistance. The reaction time can be as little as 48 hours.

This collaborative approach allows professionals using the system to custom-plan their work in great detail, receiving the final product with full instructions for achieving the best results, while still maintaining a competitive price.

CT
3D model

3D
Printed model

Printed anatomical models and study models using STL or DICOM.

PLANNING
Design

To avoid complications and ensure the quality of the planning is second to none, the professional is given a complete report of each case fully detailing all the steps in the process.

CUSTOM PLATES

With the different types of plates, the surgeon is given all the screws and tools necessary to perform the surgery.*

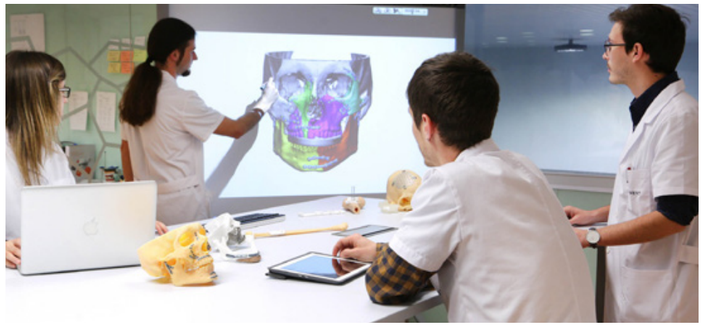
** Plates available in sizes 2.5 / 2.0 / 1.5 / 1.25 / 1.0 / 0.8 / 0.5 mm.*

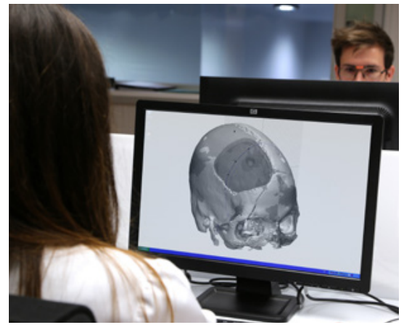
CUTTING GUIDES

Cutting guides are available for maxilla and mandible / fibula and iliac crest flaps/ implants and orthognathic surgery.

SURGERY

48h





Ongoing communication with the professional

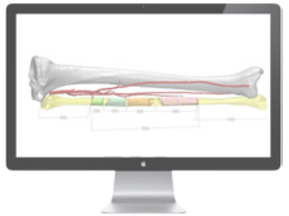
To ensure the high quality of the planning process and design, AVINENT has developed a digital platform that streamlines the ordering process and communication between all parties involved.

The remote connection creates a link between the specialist and AVINENT, allowing them to work together to design the best possible solution for every problem. Thus, all participants receive a full report on each case detailing every step and guaranteeing fluidity, effectiveness, quality and, above all, improving the predictability of the process.

www.adh.avinent.com

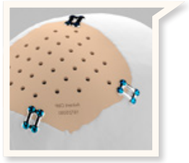
Cutting-edge software

AVINENT has a team of leading specialists working with state-of-the-art planning and 3D design technology. Thanks to the versatility and flexibility of this cutting-edge software, the AVINENT team deals with every case individually, providing a detailed analysis for each patient, thus optimizing the chances of success.



A variety of materials, a wealth of solutions

Cranio-maxillofacial reconstructions tend to be very complex and to present significant differences. Therefore, it is very important for the clinician to have a product and a service that provide a wide variety of materials and production systems. AVINENT Digital Health offers exactly this.



PEEK MEDICAL

Material: Polyetheretherketone

A highly resistant and exceptionally malleable thermoset polymer. Its physical characteristics make it comparable with those of human bone. It is the most common material used in orthopaedics.

ACRYLIC

Material: Methyl methacrylate

Acrylic resin is an economical, biocompatible material that can be used in a variety of applications. Its neutral colour offers enormous aesthetic and functional versatility.

TITANIUM MESH

Material: Pure titanium

This mesh adapts well to the complex geometries in which it is used. It is a very versatile material that offers excellent properties for osseo-integration.

SOLID TITANIUM

Material: Pure titanium

A highly resistant alternative to titanium mesh. Solid titanium offers many advantages in those cases where mechanical protective function is important.

POLYAMIDE

Material: Synthetic polymer

Polyamide has an impressive range of mechanical properties, great strength, and excellent sliding characteristics and resistance to wear.

*In addition to the **additive manufacturing technology** for different materials and methods, the incorporation of new, world-leading digital processes allows AVINENT Digital Health professionals to offer a wide range of possibilities to address and resolve any situation.*

3D printing area

Everything under control

AVINENT Digital Health has a medically approved and certified 3D printing area. Its specifications and design allow full control of all conditions in the room, from temperature to humidity.

Selective laser sintering

Pioneers in titanium 3D printing

Selective laser sintering technology allows a wide range of properties to be achieved in each part. Similarly, layered production offers great freedom of design in the manufacture of complex geometries.

Milling

Safety resulting from years of experience

Years of research and development have made AVINENT expert in milling systems. Thus, its HSM technology allows structures to be customized without affecting the fabric of the material, which remains homogeneous with no alterations, distortions, or stresses in the final result.

AVINENT®
Digital Health

CMF PRODUCTS AND SERVICES

A commitment to medical solutions customized through scientific research and technological innovation, the hallmark of all AVINENT Digital Health products and services

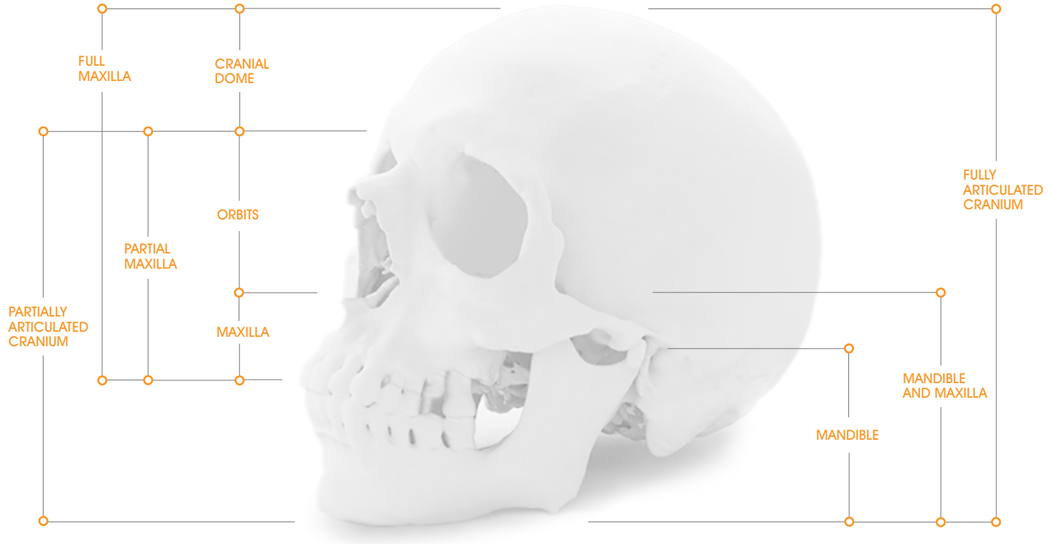
PRINTED MODELS

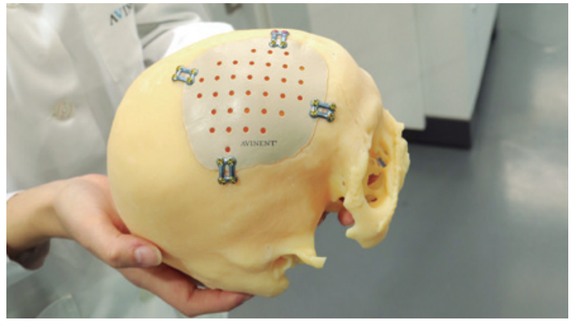
Custom models for surgical planning

The surgeon can more reliably and precisely assess and study each case with a printed model, which facilitates the task of finding an ideal solution for the patient.

AVINENT Digital Health has a wide range of materials with which to print any type of file, taking into account the purpose of the final product. It also has an extensive list of ready-made products that can be shipped on demand.

In extreme cases, AVINENT Digital Health works directly with the surgeon to assess which specific features should be included in the model.

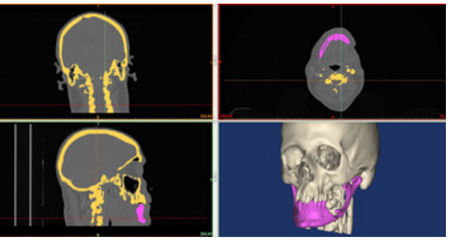




With AVINENT Digital Health's state-of-the-art technological equipment, any type of file can be printed to create customized or standard products.

SEGMENTATION

Digital versatility



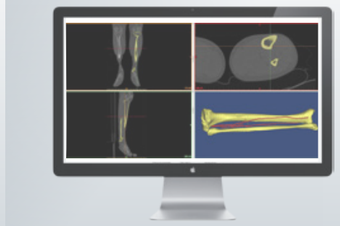
AVINENT Digital Health extracts the required data from the CT scan and transforms it into a virtual file, so it can be viewed and printed in 3D.

This operation offers many advantages to the professional who can obtain detailed information about the patient's affected area, whether it be maxillofacial or relating to another part of the body.

The 3D model allows the professional to make any changes necessary at any time in order to find a solution to the patient's problem.

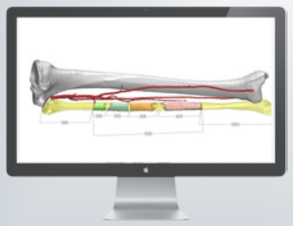
With an accurate segmentation of the affected area, it is possible to obtain different products and carry out different processes depending on the specialist's requirements.

1



CT

2



Segmentation

3

3D printing
Virtual planning
3D design
Reconstruction

To consider

CRANIOFACIAL SURGERY

Increased accuracy, improved intervention

Virtual planning, along with stereolithographic anatomical models, helps the specialist to plan the surgery and thus reduce its duration. Moreover, the simulation of soft- and hard-tissue deformations allows improved predictability in the intervention.

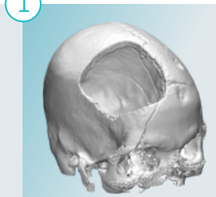
If the surgeon needs specifically designed and planned surgical guides, AVINENT Digital Health has all the virtual data at its disposal to increase design accuracy, both before and after implant surgery.

In craniofacial surgeries cutting guides can be employed, which is why AVINENT Digital Health offers the most efficient product and service model.

Product and service model:

PRINTED MODEL | VIRTUAL PLANNING | SURGICAL GUIDE | CUSTOM PROSTHESIS | SURGICAL KIT

1

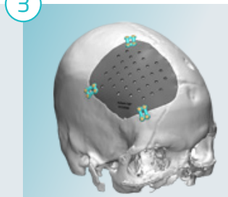


Initial position

2

Virtual planning

3



Custom prosthesis

SURGERY

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

RECONSTRUCTIVE SURGERY

Bespoke planning

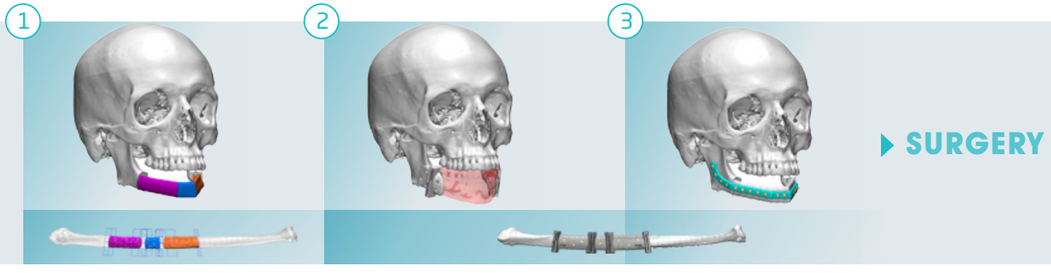
The virtual 3D simulation of the affected area allows the AVINENT Digital Health team to tailor the planning and design of the intervention to the patient's individual needs. Thus, surgical cutting guides are added in a process in which the surgeon remotely reviews and accepts all the steps. At the end of the planning and design process, a detailed report is provided containing all the specifications for the surgeon's approval.

If the professional so requires, three different types of impressions of anatomical models can be supplied: one showing the initial position, another showing the proposed planning, and a third showing the final planning.

The surgeon can make suggestions at any point in the process, and this system provides a competitive advantage in unforeseen circumstances, allowing for speedier implementation.

Product and service model:

PRINTED MODEL | VIRTUAL PLANNING | SURGICAL GUIDE | CUSTOM PLATE | SURGICAL KIT



Virtual planning **Surgical guide** **Custom plate**

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

RECONSTRUCTIVE SURGERY WITH IMPLANTS

Complete reconstruction

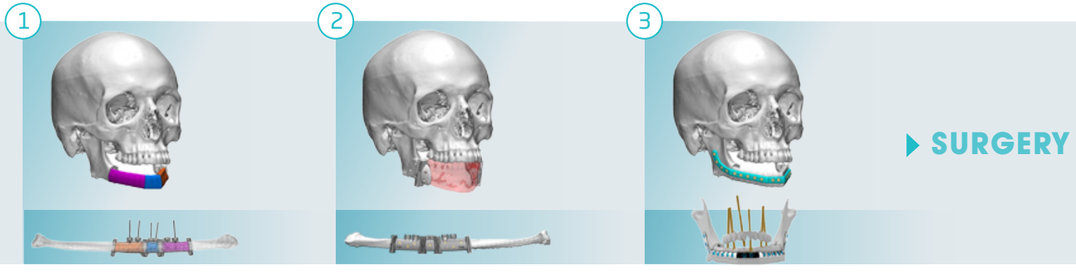
AVINENT Digital Health's complete reconstructive surgery is second to none when it comes to considering all the variables that may be involved in reconstruction. Depending on the demands of each case, a dental prosthesis is designed and the implants are planned before being placed directly into the fibula (depending on the prosthesis) and subsequently into the mandible.

This type of surgery is aimed at specific cases where conditions are optimal for its performance. In these complete reconstructive surgeries, cutting guides need to incorporate implant placement guides.

With this surgery the patient's masticatory function is vastly improved and a far superior aesthetic is obtained than that offered by conventional cosmetic surgeries.

Product and service model:

PRINTED MODEL | VIRTUAL PLANNING | SURGICAL GUIDE | DENTAL IMPLANTS | CUSTOM PROSTHESIS | CUSTOM PLATE | SURGICAL KIT



Virtual planning **Surgical guide** **Custom plate**

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

PANFACIAL FRACTURES

Competitive advantages for a delicate process

Panfacial fracture surgeries are highly complex as the reconstruction process is very delicate. One of the advantages of virtual planning is the ability to study the movements of the bony structures in these fractures.

With virtual surgical movements, defects can be corrected and positioning splints designed to facilitate the task of the surgeon. From this planning, totally custom plates can be designed.

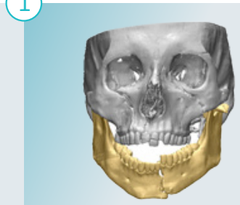
Along with its detailed specifications report, and among its other solutions, AVINENT Digital Health additionally offers positioning splints.

Analysis of the movements of the bony structures facilitates the delicate reconstruction process.

Product and service model:

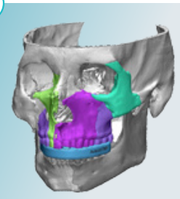
PRINTED MODEL I VIRTUAL PLANNING I POSITIONING SPLINT I CUSTOM PROSTHESIS I SURGICAL KIT

1



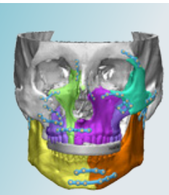
Initial position

2



Planning and positioning splint

3



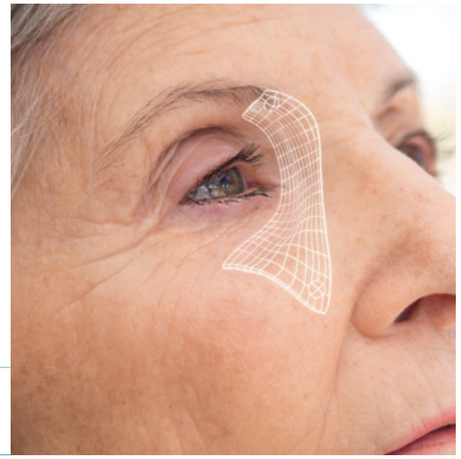
Positioning splint + custom plates

SURGERY

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

ORBIT

The perfect fit



Using data obtained from the patient's STL files or CT scan, AVINENT Digital Health can design an implant that perfectly fits the topographic characteristics of the human orbit in any position.

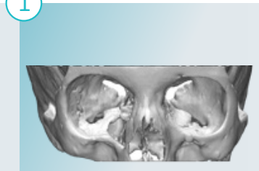
This process allows an accurate reconstruction of the defects to be made, even in the case of major biparietal skull fractures.

The use of 3D study models is essential in these cases as the design of the plate demands special attention be paid to the orbits and their complicated geometry.

Product and service model:

PRINTED MODEL I VIRTUAL PLANNING I CUSTOM PROSTHESIS I SURGICAL KIT

1



Initial position

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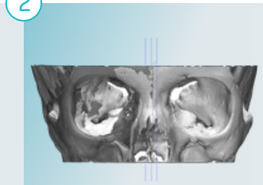
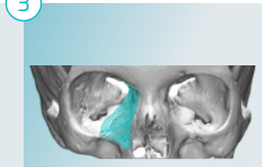


Virtual planning

3



Custom prosthesis

SURGERY

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

ORTHOGNATHIC SURGERY

A surgical guide for professionals

In orthognathic surgery it is helpful to study surgical movements in order to predict the changes that the soft tissue will undergo. By studying and preparing the virtual osteotomy, AVINENT Digital Health identifies the exact direction of the cut required in order to create a cutting guide for professionals' use in surgery.

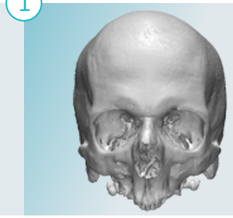
Apart from surgical guides, AVINENT Digital Health designs intermediate and final positioning splints to help the professional during the osteotomy.

The surgical guides include important aids as special planning is needed in orthognathic surgery for the tools' insertion axes.

Product and service model:

PRINTED MODEL I VIRTUAL PLANNING I SURGICAL GUIDE I POSITIONING SPLINT I CUSTOM PLATE I SURGICAL KIT

1



Initial position

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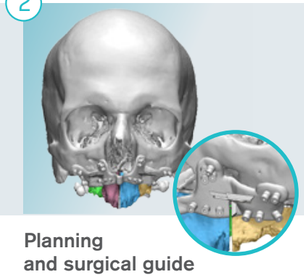


Planning and surgical guide

3

Custom plates

SURGERY

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

CONDYLE - TMJ

Accuracy, the key to success

AVINENT Digital Health's 3D design and planning software allows the surgeon to observe the movements in advance and thus adjust the tissues for optimal results. In corrective TMJ surgeries, prostheses should be adjusted to give a perfect fit. With all the data it obtains, AVINENT Digital Health allows actions to be predicted preoperatively and risks minimized.

If the patient is to achieve correct functionality, optimum customization of the implant is essential.

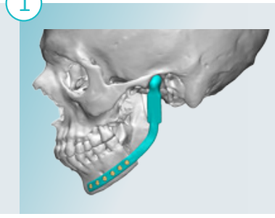
TMJ reconstructions should be adjusted to the millimetre; this is why printing the plate and pre-testing it in the study model contributes greatly to the functional success of the operation.

The surgeon can predict the actions to be taken using the data obtained by AVINENT Digital Health, thus minimizing any risk.

Product and service model:

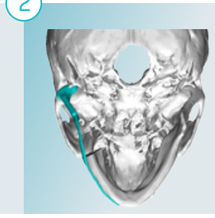
PRINTED MODEL I VIRTUAL PLANNING I SURGICAL GUIDE I CUSTOM PROSTHESIS I SURGICAL KIT

1



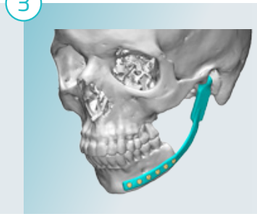
Lateral end

2



Interior end

3



Front end

SURGERY

When the planning is complete, a detailed report is provided containing all the specifications for the surgeon's approval.

SURGICAL INSTRUMENTS

Solutions for everything

AVINENT Digital Health provides all the surgical instruments required to perform the interventions. Fasteners and tools, such as screws and screwdrivers, have been specially designed to meet every challenge and respond to the many variables with regard to dimensions.

AVINENT Digital Health develops different procedures depending on the plate, case, and purpose of the intervention. The main challenge of these designs is to be as versatile as possible in any situation.

Available dimensions and surgical box

To meet the needs of each case and depending on the plate chosen, AVINENT Digital Health's surgical box contains a wide range screws of different dimensions and tools to address the multiple variables of any intervention.

WIDE RANGE OF LENGTHS

Available from
3 mm to 20 mm.

The length and relative diameter of the screw available varies depending on its application.

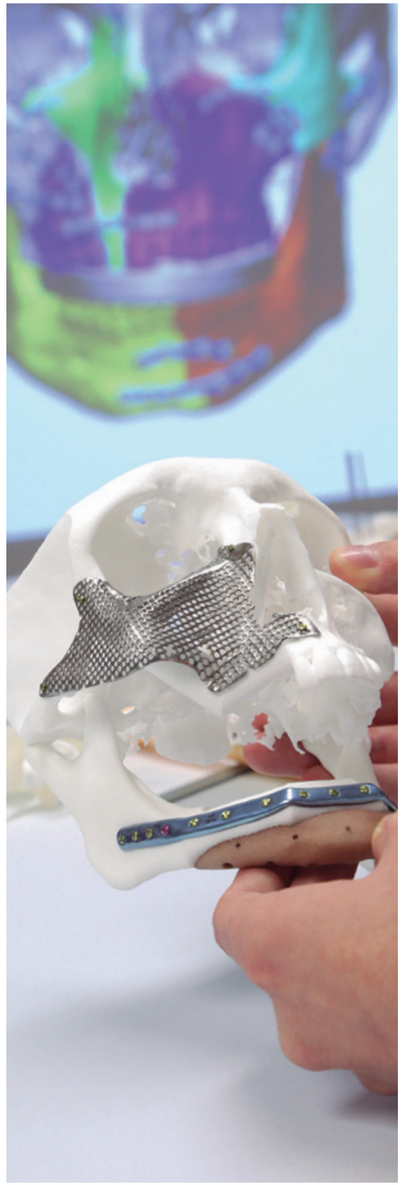
EMERGENCY DIAMETERS

ø 1,5 to 1,8
ø 2,0 to 2,3
ø 2,5 to 2,8

The emergency diameters are designed for possible complications during the placement of the plate.

The surgical box has been designed to facilitate the work of the surgeon.

The box allows the necessary materials for an intervention to be kept in order and provides easy access to the relevant instruments.



INNOVATION AND CUSTOMIZATION FROM START TO FINISH

AVINENT Digital Health addresses people's health problems with custom-made solutions, the result of extensive scientific research and technological innovation.

AVINENT takes another step into the future with this new product line, created with the aim of improving patients' quality of life and facilitating professionals' surgical practice. The company's successful business experience, along with its position at the forefront of the digital world, is the solid foundation on which AVINENT Digital Health is built.

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