

The four steps to excellence with Tecno-Gaz integrated solutions for surgery:

- **▶** The instruments
 - Instrument arrangement and operator times
- The surgical room

Standards, hygiene, air, impression given

- ▶ The clinical staff
 - Operative ergonomics
- The patient

Stress, emergency, comfort

Increased value regarding implantology Our mission in dental surgery:

Facilitating access to a professional environment to as many implant surgeons as possible Improving operative ergonomics and efficiency. Complying with the standards and recommendations in the technical field concerning the execution of implant surgery interventions.

20 pages of innovative solutions

Stress denot PAIRI

Receiving, reassuring and carefully preparing the patient

Patient's Stress

The WHO estimates that dental treatments cause significant stress in 30% of the patients. This fear of the dentist and pain are greater in the case of implant surgery.

Clinician Patient Clinical staff

Lack of preparation
Uncomfortable seat
Uncomfortable position
No correct visibility
No easy access to the
instruments
Lack of ergonomics
Stressed patient

Uncomfortable position
Fear
Pain
Sight of instruments
Lack of information
Lack of communication
Stressed assistant
Stressed clinician

Lack of information
No comfort on the seats
Uncomfortable position
No correct visibility
No easy access to the instruments
Lack of ergonomics
Stressed patient
Stressed clinician

- All the instruments are out of sight and do not cause stress to the patient
- The patient does not feel helpless and is more tranquil and collaborative

The sight of instruments, the noise produced by rotary instruments and aspirator, sudden movements and intense light are the main causes of stress. The possibility of **receiving, reassuring and carefully preparing the patient** will put him/her at ease. The more relaxed the patient, the easier the treatment.



Being prepared for the unexpected. It's a must!

Implantology is a consolidated practice of proven efficacy, at increasingly reasonable costs.

Elderly patients represent the highest percentage of people undergoing implantology.

Emergency management

Anti-shock and emergency positions



Preset positions for a timely management of every circumstance and for contrasting the onset of potentially critical situations



During surgery, the clinician must often deal with patients with reduced movement capacities; therefore, an easy access and a comfortable seat on the chair are a prerequisite.

A surgical intervention can cause circulatory and/or respiratory difficulties in the patient, which must be faced and solved. Knowing how to anticipate the cardiocirculatory and cardiorespiratory problems allows for a more efficient emergency management.



Stress denot PAIRI

At the centre of the quality of your work

Patient Comfort

Long-term comfort is of fundamental importance, as surgery procedures can be long-lasting. Patient comfort is important, since each of his/her movements will have consequences on the procedure, increasing its length and influencing its correct execution, with a potential error risk.

Comfort comes from a correct position.

- An uncomfortable patient moves.
- A patient who moves is more difficult to treat.
- This difficulty increases the error risk.
- Why does a patient move?
 - Because he/she feels uncomfortable on the chair.
 - Because he/she feels a pain which is not relieved by the position taken.
 - Because the procedure is lengthy and body weight is concentrated only on one part.
 - Because the treatment forces the head to maintain an uncomfortable position.

4 motor-driven elements Allow for 5 different movements, ensuring absolute comfort



Surgical table

Variable height Dental

Anti-shock and emergency positions

Orthopneic o Trendelemburg Fowler semi-seated

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Accessibility: the key to team efficiency



FOUR/ SIX-HAND WORK

Six-hand work: for example, if a microscope is used, a second assistant will prepare and make instruments available, or if the procedure must be filmed or photographed. There are many cases in which one or more participants are involved in a surgical procedure.





 Expectations can be summarised in one word: accessibility.
 Easy access to the chair, the instruments and the light.



A compact chair facilitates the movements around the patient and a direct view of the surgical area.



 An ergonomic backrest will contribute to patient comfort.



Moving elements will allow for immediate instrument availability.



 All these factors are essential details which play a role in improving work ergonomics and operative efficiency.

assistant for procedures according to

protocol and under control.

HYGIENE



Hygiene is the primary aspect which must be considered right from the design phase of a surgical room.

All the operators are involved: instrument preparation, clinical operativeness, cleaning and recovery after surgery, sterilisation, used instrument disposal.



Smart Trolley Postoperative

Smart Trolley Postoperative has a 9 litre stainless steel basin for the treatment of surgical cassettes and single instruments.

The elements for separate waste collection enable the disposal of single use materials, avoiding the risk of contamination. The metal surfaces can be cleaned in the sterilisation room.

Kyri upholstery

Kyri upholstery can be easily removed for fast cleaning.





Kyri DSS is a surgical aspirator equipped with disposable bags, tubes and cannulas, which has been specifically designed for surgical use. The single use set with tube and sterile cannula ensures perfect hygiene according to standards.

- The main points which must be emphasised and considered are:
- Spaulding classification of the criticality of the instruments and devices used.
- 2 Progressive asepsis.
- (3) Sterilisation cycle.

- A Specific equipment and surgical room.
- (5) Water and air treatment.
- (6) Waste and contaminated instrument management.
- 7 Patient and involved people preparation.
- The observance and application of the above points will have a significantly impact on the success and health of the patients and medical staff.
- Surgical room organisation is crucial; therefore, task planning is of primary importance.





It has been shown that turbines atomise about 400,000 particles per minute, which mainly distribute in a circular space of 3 metre diameter around the source.

This involves about 70% of the operators in an area from the head to the chest. In a dental operating room, if the air saturated with bacteria comes into contact with the open gingiva of the patient, it will have a significant impact on the post-operative effects and on the success rate of the surgery carried out.

THE AIR

- Indoor air is 10 times more polluted than outdoor air.
 - Bacteria, viruses, fumes, dusts, odours, allergens, pollens, mites, volatile organic compounds (VOCs), etc. are all potential poisons which compromise comfort (Sick Building Syndrome).
 - These polluting agents are responsible for from 3 to 6% of pulmonary infections and diseases and from 3 to 15% of new asthma cases (WHO report).
 - Thus, polluted air becomes a new cancer source and a carrier of airborne viral transmission (e.g. H5N1).
- We spend 80% of our time indoors.

 Sometimes we suffer from nausea for no reason or from a sudden headache. The cause for it is contaminated indoor air.

- Air contamination
- Environment full of bacteria
- Medical staff and patients exposed to airborne infections
- Atomisation from sprays and rotary instruments
- The risk of airborne contamination for the patients is important and increasingly growing in hospitals, operating rooms and surgeries.
- 60% of the atomised particles is infected
- 70% of the infected particles is smaller than 0.3 microns and absorbed by the human body
- Human beings working for 8 hours breathe 10,000 litres of air



SterilAir Pro

Current standards

- In France, the recommendations for organising a special room for oral surgery demand the following criteria:
 - **Mobility:** The amount of equipment (furniture, carts, chair) used must be reduced to the minimum and furniture must be arranged in the most ergonomical way.
 - Facilitated cleaning and asepsis: All the devices must ensure simple cleaning and preparation. The worktops must not have sharp edges and the chair must have a seamless design. Strongly recommended are a cabinet for dirty instrument treatment and a container for sharp and cutting objects.
 - The operating room must ensure easy, repeatable cleaning in an environment in which hygiene and asepsis rules are observed.
 - The study shows that a specific operating room allows for better organisation, easier planning and better work ergonomics.
 - Details are available in the HAS 2008 paper.

- In Spain, besides the above principles mentioned in the French report regarding regional recommendations, two essential points are underlined:
 - The surgical chair must be articulated, with a seated position and a 360° accessibility.
 - Patient continuous monitoring, as well as the availability of first care devices and medical gases (oxygen), are indispensable.





THE IMPRESSION GIVEN TO THE PATIENT

In recent years, the cost of surgical and implantology procedures has been significantly reduced in all European countries. Nevertheless, they often represent a great expense for the patient.

- A specific tidy room, equipped with professional appliances and devices, will be a significant advantage when the patient must to choose the facility in which to be operated and accept the proposed estimate.
- The patient invests in care, the professional invests in proper material; this balance and order of things will create mutual trust.

In patient forums, many comments regard equipment in a bad state, worn or inadequate. These studies show that patients take note of tidiness and hygiene, as well as light and colours.





A young implantologist tends to think that he/she will always deal with the same simple, easily accomplished implantology cases. Practice, skill, curiosity and continuous training will give him/her access to more complex cases. Colleagues, scientific journals, refresher courses and trade fairs will orient him/her towards innovations, which will permit him/her to move to a higher level.

PURSUING GROWTH





- If the initial operating room design does not take the future into consideration, the clinician will soon have to deal with the limitations of his/her working environment.
- It would be ideal to integrate it with other instruments in the future (laser, piezon, PRF, etc.) without altering ergonomics, arrangement and that image of tidiness and cleanliness given to the patient.
- All this will be possible only by calculating sufficient space for such equipment integration in the working environment (by long-term thinking during clinic planning).

80+ Over 80 possible configurations



Side instrument support rail

Linear design for instrument support rails available on both sides of the chair. Designed to facilitate your work and ideal for connecting compatible accessories.

- Infusion holder for manual infusion
- Articulated arm with safety system and support for suction cannulas
- Removable rotating armrest
- Infusion and sedation armrest





INSTRUMENT ORDER AND POSITIONING

In a very high percentage, implants are applied in a conventional environment, i.e. with the patient seated on a traditional chair. This setting shows a number of ergonomic problems, the first of which is the access to instruments.



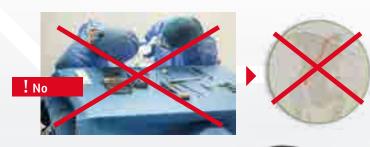


- First of all, the use of a conventional bridge table is difficult, or even impossible, under a traditional chair equipped with cuspidor.
- In such a conventional environment, the instruments are positioned on different surfaces, far from one another: on the tray under the overthe-patient instrument unit, on the worktops of back or lateral furniture, and sometimes even on the patient apron. Consequently, the access to instruments and their availability are difficult and not ergonomic.
- The great number of supporting surfaces is an obstacle to ergonomics and operative efficiency. This results in longer procedures, increased error risks and the possibility of instruments falling on the floor.
- All this implies an important hygiene problem, as cleaning many working surfaces in an operating room takes a long time.

TECNO-GAZ SOLUTIONS

Long-term comfort is of fundamental importance, as surgical procedures can be lengthy. Patient comfort is fundamental, since each movement will have consequences on the procedure, increasing its length and influencing its correct execution, with a potential error risk.

Easy access to the chair is important, as surgical procedures are also carried out on elderly patients, who often show reduced mobility or overweight. Easy access and comfortable seating are essential for a chair. Anticipating cardiocirculatory and respiratory problems allows for a better emergency management. A prolonged surgical procedure on a patient can cause circulatory and/or respiratory difficulties, which must be dealt with. Interaction with the assistant is crucial both in terms of presence around the chair, and of four-hand work.





Kyri surgical chair

Kyri chair design is based on 4 essential principles:

- Patient comfort during prolonged treatments
- Patient safety, to avoid cardiocirculatory and cardiorespiratory problems.
- Working space for the operator and the assistant.
- Patient reception, preparation and management.

The main features are:

- Body segmentation in 4 parts for better weight distribution, thus ensuring maximum comfort for the patient and the operator.
- Safety, trendelenburg and orthopneic positions, to face potential cardiocirculatory or cardiorespiratory emergencies and ensure patient safety.
- Low seating position at 43 cm from the ground, to facilitate access for patients with reduced mobility.

- Enveloping backrest for improved shoulder support.
- Reduced footprint and thin backrest to facilitate the movement of the surgeon and the clinical staff from the 9 o'clock to the 1 o'clock positions.
- Side rails for additional accessories, ensuring product technical implementations.
- Orbital headrest which can be angled at 45° in the lateral and vertical directions, for total integration with the Orion 40DS surgical operating light.

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Special surgery Cal

KYRI CART

Mobile instrument cart for implantology and surgery. Maximum freedom for instrument configuration

Kyri Cart offers great possibilities of personalisation: the 5 instrument slots allow for multiple configurations. The basic configuration (syringe, turbine, micromotor and ultrasound unit) can be associated to an existing surgical micromotor.

Optimal configuration

- Syringe, micromotor, turbine, ultrasound unit, space for additional micromotor. Up to 5 slots far free configuration of dynamic devices.
- Color Display touch 7", it can be sanitized.
- Infusion holder and ceramic worktop = Solid support for a separate surgical micromotor.
- Kyri Cart Clean Water System fed by a 2 litre bottle, sufficient for a working day. It can also be directly connected to the water supply system.
- Pedal control: wired or wireless, can control all the functions of Kyri chair (rotation and spray).
- Pneumatic height adjustment.



Kyri Bridge Table

This bridge table has a simple design and an extraordinary principle.

- A metal table with stainless steel top can be transformed in a space on which the instruments for use during surgery can be properly arranged.
- This space represents a natural linking and communication element between the operator and the assistant.
- The assistant will lay out the instruments according to the predefined sequence and the operator will use them accordingly.
- Speed, concentration and operative efficiency to the greatest benefit for the patient.



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SURGICAL LIGHTING

Light intensity up to: 130,000 Lux

Colour temperature: **4,500/5,000** *K*

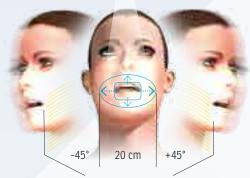
Illuminated field: 15 cm and 20 cm

- A perfect vision is important in dentistry and fundamental in implantology. During a surgical procedure, it is impossible to stop or move the light.
 - When the gingiva is open or the flap is detached, the patient is exposed to bacteria; therefore, the procedure must be concluded within the planned operating times.
 - However, it is not unusual for the surgeon not to have a precise vision, because at a mouth angle of 45° the margin is often less illuminated due to an excessively narrow size of the illumination field.
 - Light can also be partially blocked by the hands, the instruments used in the oral cavity or the surgeon's head.

Orion 40DS Surgical light

- Orion 40DS is a surgical operating light specifically designed to meet the requirements and limitations of dental surgery:
 - Two illuminated fields, especially designed for a mouth angle of 45° horizontally and vertically.
 - Two colour temperatures, which allow the operator to distinguish hard tissues from soft tissues and blood.
 - Calibrated light intensity, which takes into consideration reflections from white surfaces.
 - Unique patented lighting design, which ensures steady light intensity and reduced heat emission.









Unique features:

- Two illuminated fields at 15 and 20 cm, suitable for a mouth angle of 45°.
- 20 cm field to illuminate the margins in case of extreme angles from 45° onwards.
- Two colour temperatures (4,500°K and 5,000°K), which highlight hard and soft tissues.
- Indirect lighting LEDs, which maximise the scialytic effect for a better shadow management, even when the clinician's head is under the light.
- 40 cm diameter dome, which adds value to the clinic and reassures the patient.

Special surgery cast

SURGICAL ASPIRATION

A conventional aspirator removes a considerable air/water vapour volume and few solid substances. The required depression is low, about 200 mbar.

- To obtain a more selective suction (blood filaments, tissues, bone fragments), a 900 mbar depression and a significant power are necessary. An output filter on the cannula is also required to recover any bone fragments.
- A direct view on the container enables the control of the volume of suctioned liquid/blood.
- Hygiene is fundamental for the patient's health; all the statistical studies show that asepsis improvement plays an essential role on the success rate of surgical interventions.
- To remove the bacteria produced by the amount of suctioned liquids and solid matter, the suction tubes must be disinfected at least twice a day with an appropriate liquid.
- The disposable sets (tubes, cannulas) for surgery ensure the maximum asepsis level required, crucial to respect and protect the patient.
- Finally, the mobility of the device means that it can be closer and positioned more efficiently in the workspace and simplifies cleaning in the sterilisation room. The suction unit can be placed under the worktop when not in use.



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Kyri DSS surgical aspirator

- Kyri DSS is the surgical aspirator whose performances meet the requirements of dental surgery and permit a selective, precision suction of blood, tissues and bone fragments.
 - High depression for precision suction.
 - Facilitated movement for better integration in the surgical layout.
 - Disposable cannulas, collection bags and tubes for great asepsis.

Functionality and ergonomics

- Steady 900 mbar depression for precision suction of great volumes of tissues, bone fragments and blood.
- Powerful 90 l/min suction.
- Reduced 20 Kg weight and small size (36 x 101 x 44 cm) for facilitated movement and simple integration under the worktop.
- Complete standard equipment: 50 disposable sets (bags, tubes and cannulas) for a very competitive cost for any surgical procedure.
- Rounded edges and membrane control protection for easy cleaning and disinfection.
- Wheeled cabinet, double container and control pedal available as standard, for a competitive configuration without expensive accessories.

STERIL AIR PRO

SterilAir Pro is a device for air sterilisation which eliminates all the microorganisms, including spores.

- This device can work continuously even in the presence of patients, ensuring maximum protection for the operator.
- Its functioning is based on a closed circuit forced ventilation system. The air enters the sterilisation chamber located in the device, which eliminates the microbial load thanks to the effect of UV-C rays.
- The air suctioned in the module first passes through an active carbon filter located on the lower part, where the inlet channel is situated. The coarsest pollutants are blocked, avoiding germicidal lamp contamination.
- Then, the air is forced in direct contact with the UV-C lamps which, thanks to their maximum emission and strong reflective shielding, permit microbiological elimination. UV-C rays have a strong, highly effective germicidal action, which affects bacteria, viruses, spores, fungi, moulds and mites. This is mainly due to the disruptive effect of UV-C radiations on their DNA, which prevent their growth and multiplication.

SterilAir Pro does not clean the air - it sterilises it. It has proven effectiveness on spore elimination.

- Very silent, small size, Plug & Play installation, simple and ergonomic use.
- The equipment can carry out continuous disinfection of ambient air (120 m³/h), i.e. 4 times the volume of a standard surgical room.
- It can also reduce air microbiological pollution in any room.
- During the operating hours, the bacterial load drops by 90%.



The moment has come for you to make your surgery fully operative. The cabinet becomes an element for arrangement, order and efficiency, an active component in daily working

The first professional technical furniture

practices.

SMART TROLLEY

The most successful application of ergonomics has been obtained in the automotive industry. The driver must see and have all the components required for driving (accelerator, brake, gear shift, windscreen wipers, etc.) and comfort (music, navigator, automatic speed control, etc.) within reach, because a minimum lowering of concentration exponentially increases the likelihood of accidents.

According to the Ministry of Health report dated 2008, the use of mobile devices in an operating room is recommended:

- To guarantee an effective and efficient hygiene level in the room, repeatable at high level.
- For greater operative ergonomics, since the possibility to move the elements enables the placement of all the devices, instruments and consumables in the working space and field of vision, within reach of hand or arm.

Created to make work easy and productive From simple containers to 100% active devices Suitable for all clinics: can be easily integrated and configured





Intraoperative

Smart Trolley Intraoperative enables the placement of any necessary additional elements in the working space. "We must be always ready to face the unexpected".

- Implants of different size.
- Additional needles and anaesthetic cartridges.
- Disposable gloves and drapes.
- BIOS

Having emergency supplies at hand permits the execution of the surgical procedure without limitations, for a better guarantee of success.

HQ guides with removable drawer





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Electromedical

Smart Trolley Electromedical, mobile cabinet with unique characteristics, designed to facilitate access to the many dynamic instruments used during surgical procedures.

- It houses surgical micromotors, piezon and other instruments together without problems.
- It ensures simple management, thanks to the easy view of the control panels.
- It prevents power cables from being visible or hanging and gives a feeling of order and cleanliness.

A removable panel facilitates out of sight cable placement, thus avoiding hanging, creating and impression of order and precision. It is equipped with supports for handpieces and infusion bags and permits simple, rapid use.

The brackets for implantology and surgery equipment can be oriented; the control menu is direct and easy to read.

Tilting shelves with raised rims, built-in detachable mounting plate, low floor rheostat supporting base.



Postoperative

Smart Trolley Postoperative is a strategic mobile element to obtain operative efficiency and give the patient a feeling of order and asepsis.

- Sorting of dirty disposable materials.
- Disposal and immersion of used instruments and cassettes.
- Perfect management of instrument flows and optimisation of operating room availability.
- Clinic enhancement, thanks to the excellent impression given to the patient.

A 9 litre stainless steel basin filled with disinfecting solution permits immediate immersion of used instruments and surgical cassettes, for a greater operative efficiency and perfect asepsis management.

The separate collection containers permit:

- Immediate disposal of dirty disposable devices, preventing cross contamination risks.
- Cutting object disposal, preventing injury and infection risks for the assistants.
- Progressive and simultaneous disposal of dirty elements used during surgery, optimising times for room preparation for the next patient.

30 one-second gestures are better than one sorting and distribution operation lasting a few minutes.

Why investing in an operating room.



Dr. Pierre Drean Dental surgeon in Cluses en Haute SAVOIE.



My activity specialises in periodontology, surgery and total implant rehabilitations.

I acquired 2 surgical clinics for my health centre in June 2016. All the equipment is designed for extraction and implant surgery, bone grafts and, more generally, for every kind of surgical interventions. With a very well-designed mobile unit, which permits the execution of asepsis and operatory preparation of the patient before surgery, this unit can be moved from one room to another in less than 2 minutes. The high performance lighting, the completely adjustable chair and the mobile unit allow me to work rapidly and efficiently in any room in which it is present; this is a real plus for my assistants, my patients and myself. To my colleagues, I recommend and suggest Tecno-Gaz installations for the reliability and modularity of their equipment.

www.centreimplantairedumontblanc.fr



Dr. Rachid Koummal Dental surgeon in Brussels, Belgium.

I acquired a complete clinic for implant surgery in May 2017. My investment has the following reasons: diversifying my activity through implant surgery and reassuring my patients with a room reserved for surgical interventions, separated from the one used for traditional dental procedures. A treatment space reserved for surgery also represents a safety assurance and permits greater defence before the insurance companies and the law in case of problems.



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Dr. Nicolas Davido Oral surgery specialist in Paris.

I have been using the surgery, implantology and pre-implant surgery equipment provided by Tecno-Gaz (2 Onyx 7 autoclaves, 2 Kyri chairs, 2 Orion 40 operating lights) for over one year. In our practice, we also deal with elderly or disabled patients; the possibility to adjust the Kyri chair in all the positions permit these patients to have optimal comfort during surgical procedures which can be long-lasting. Besides, the upholstery is almost completely removable; this allows us to obtain the maximum asepsis of our surgical room.

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Dr. Juan Alberto Fernandez Ruiz Clínica Fernández, Ibiza

General oral surgery, as well as implantology, have drastically changed in recent years. The importance of the procedures carried out, the complexity of the techniques and their length, the use of anaesthetic equipment and the patient demand for excellent quality interventions require a modern clinic to be equipped with a space reserved for surgery. This will bring a series of advantages: on one hand, offering the medical team (surgeons and anaesthetists) a working environment which is equally practical, ergonomic and functional; on the other hand, meeting the patients' expectations in terms of comfort and safety.

Dr.Juan Alberto Fernández Ruiz

Medical Director at Clínica Fernández Ibiza www.clinicafernandez.es

Medical Director at Oralsurgerytubr www.oralsurgerytube.com







Dr. Jesus Escalante Clinica BIORAL, Bilbao

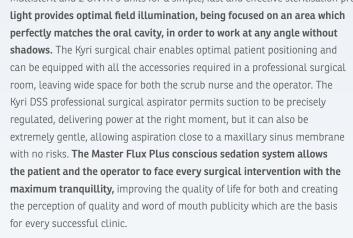
In recent years there has been a great evolution both in the materials, and in the instruments used in our daily work; so, professionals have to make important investments in their activities. Incorporating the latest technologies is our philosophy. In line with our style, we invested in a special surgical room at the beginning of 2016. Regarding patient reception, room hygiene, work ergonomics and treatment efficiency, we know that we can guarantee our patients excellent results in a specially equipped space. This goal has guided our investment decision.





Dr. Mario R. Cappellin Director of Cappellin dental clinic, Pinerolo (TO)

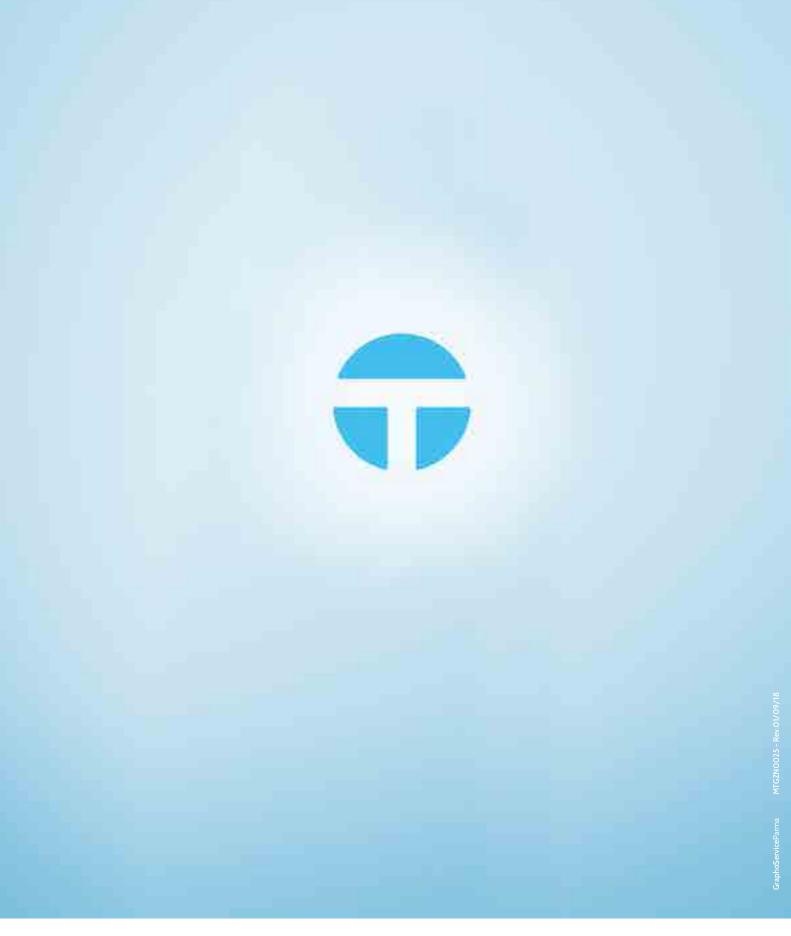
My partners and I founded the clinic in 2010, installing 6 operative units and 1 special, traditionally equipped surgical room which remained operational until last year, when we decided to double the size of the clinic by adding a new floor. We discovered the Tecno-Gaz integrated surgical system and we had no doubt that it was the most flexible, versatile and ergonomic solution. The Smart Trolley modules allow us to organise the surgical room ergonomically ad hoc for every intervention, in close proximity to he sterilisation room equipped with 2 Multisteril and 2 ONYX 5 units for a simple, fast and effective sterilisation procedure. The Orion 40 DS operating



www.clinicacappellin.it









Tecno-Gaz S.p.A.

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