End-to-end solutions
for interdisciplinary Hybrid operating rooms

Committed to helping hospitals enhance their workflows and improve the patient experience: Maquet is one of the world’s leading providers of medical products for operating rooms, cath labs, and intensive care units. The company comprises three divisions: Cardiovascular, Critical Care and Surgical Workplaces. As a one-stop provider of complete hybrid operating room solutions, Maquet stands for innovation and technological progress. It is a subsidiary of the Swedish Getinge Group, a publicly traded company.

Extensive Hybrid OR expertise: Thanks to its considerable experience in the Hybrid OR space, Maquet understands the needs of all stakeholders. It provides valuable support throughout the entire product lifecycle, from planning and implementation to investment protection, helping hospitals make the most of their hybrid operating rooms.

Maquet | The Gold Standard
Hybrid operating rooms –
Opening the door for new therapies

The best of both worlds: Hybrid ORs transcend medical boundaries by combining a state-of-the-art sterile operating room with a powerful imaging system such as an angiography C-arm, a computed tomography (CT) scanner or a magnetic resonance imaging (MRI) scanner. Facilities of this type are rapidly becoming a differentiating factor in today’s hospitals, as minimally invasive procedures driven by intraoperative diagnostics gain ground across a variety of disciplines.

For many years now, X-rays, fluoroscopy, and real-time navigation and mapping have enabled new, patient-friendly cardiac and vascular therapies – such as minimally invasive heart valve replacement, and open-heart surgery without extra-corporeal circulation. However, hybrid operating rooms are not limited to this field. Intraoperative diagnostics can open new opportunities for a wide range of disciplines, including neurosurgery, orthopedics and traumatology. And to ensure effective utilization of resources, Hybrid ORs can also be used for conventional procedures.

More coordinated care: because hybrid operating suites feature state-of-the-art imaging equipment in the sterile surroundings of an operating room, there is no need to transport patients from the OR to the radiology wing and back. Instead, diagnostic imaging and surgical procedures can take place in a single session, in the same room. This saves valuable time, boosts patient safety, and supports quicker recovery times.
A keen understanding of workflows and requirements – **the right partner** for Hybrid ORs

**A Hybrid OR pioneer:** Maquet’s experience goes back to 2000, when it embarked on its first hybrid operating room project in Switzerland. Since then, it has equipped multiple complex, interdisciplinary Hybrid ORs around the world, working in close collaboration with imaging equipment providers.

**Driving efficiency:** since Maquet is also active in the areas of cardiovascular intervention, neurosurgery, orthopedics, and critical care, it has in-depth insight into the workflows involved. This means that it is in an excellent position to help hospitals meet their goals of boosting efficiency and increasing throughput. And thanks to Maquet’s keen understanding of the needs of hospital directors, doctors, surgeons, nurses and patients, it can help planners design a streamlined operating room that is appealing to all stakeholders – ensuring optimal utilization.

**In good hands:** thanks to this extensive expertise, Maquet is more than a one-stop equipment supplier: it is a solution provider. When you choose Maquet, you’re choosing a partner who can support you throughout the OR’s entire lifecycle: from assessing workflow requirements, to selecting suitable equipment, to planning a room layout – enabling you to keep your room on the cutting edge.

Maquet helps hospitals design operating rooms around their teams’ workflows – so clinicians have everything at their fingertips.
Maquet creates **flexible, future-proof solutions**
Protecting hospitals’ valuable investment

**One room, multiple uses:** since Maquet’s hybrid operating rooms can be used for a variety of interventions, they are a cost-effective solution. This versatility is possible thanks to modular surgical tables with interchangeable table tops, innovative transporters with table tops suitable for MRI and CT scanners, and flexible equipment that can be deployed in an interdisciplinary context. The operating room can be quickly repurposed: for example, the surgical team can seamlessly switch from a cardiac procedure to an orthopedic intervention and back, minimizing downtime. And with the help of specialized software, imaging equipment can be utilized for navigation and mapping in addition to standard X-ray and fluoroscopy diagnostics.

**High cost effectiveness:** Hybrid ORs deliver an excellent return on investment thanks to optimized use of technical and human resources, a wider therapy spectrum, and improved patient outcomes. As imaging and interventions can be carried out in a single session, there is no need to coordinate appointments with multiple departments and teams. In addition, an expanded range of possible interventions, coupled with improved patient outcomes, makes for more referrals and underlines your hospital’s reputation as a leading-edge institution.

**Room to grow:** Maquet helps hospitals make the most of their Hybrid ORs – today and tomorrow. Thanks to the modular solution concept, you can rest assured that your operating room can accommodate future technologies. Individual components can easily be added or replaced. So when new innovations emerge, they can be integrated with minimal changes to your existing equipment or layout. This makes Maquet operating rooms a future-proof, long-term investment.
An appealing environment for OR teams and patients

**Come on in:** Maquet is a specialist in creating welcoming, appealing spaces. Where OR teams enjoy working. And where patients know that they are in good hands. Featuring adjustable, soft lighting and customizable and modular walls, Maquet’s hybrid operating rooms are both highly functional and highly attractive.

**Thanks to streamlined workflows,** intuitive controls, and ergonomic design, doctors, surgeons and nurses can work more efficiently and provide better care. Since most equipment is ceiling-mounted, the OR team has more space and better access to the patient. And thanks to the innovative ceiling supply units, equipment such as the anesthesia machine can be easily lifted and lowered, allowing specialists to work at the right ergonomic height.

**Improving the patient experience:** as diagnostic imaging and surgery take place in the same room, there is no need for multiple appointments or risky transportation from the operating suite to the radiology wing and back. Treatment time is reduced thanks to patient-friendly, minimally invasive procedures. Outcomes are improved thanks to real-time imaging and inter-disciplinary collaboration. And patients have peace of mind that they are being treated in a state-of-the-art facility.

MAQUET is a winner of the Red Dot Best of the Best 2013 award, one of the world’s most sought-after design accolades. Moreover, it is the recipient of the APCI Design Award in the Industry and Service category – a prestigious prize recognizing exceptional product design.

An appealing, state-of-the-art operating room reflects your hospital’s commitment to excellent care.

Aesthetically pleasing and highly functional, Maquet’s hybrid operating rooms create an attractive working environment.
Helping customers plan and implement operating rooms in line with their workflows

An expert partner: it takes extensive experience and expertise to successfully integrate solutions from multiple vendors into a functioning overall concept while considering all technical requirements. Maquet has helped numerous hospitals install state-of-the-art Hybrid ORs, providing both leading-edge equipment and valuable insight into workflow optimization and treatment enhancement. In addition, Maquet can provide expert assistance when it comes to reducing complexity.

Room-planning experience: Maquet’s expertise goes far beyond supplying top-of-the-line equipment. Its specialists can also assist hospitals in accurately assessing their needs and planning their hybrid operating room to best accommodate surgical teams’ requirements. In addition, they can provide advice on the integration of partners’ imaging systems. This is why involving Maquet in the very early stages of your implementation project can be highly beneficial for workflow planning and project management.

3D room planning: sophisticated architectural planning software reflects the dimensions of your space, including all walls, ceilings, corners, windows and doors. Once the equipment has been chosen, the software delivers a 3D representation of the hybrid operating room’s future layout, complete with all furnishings and devices. This makes it an extremely valuable planning tool in terms of dealing with key issues such as compatibility, collision avoidance, and space management.

MAQUET experts can provide valuable insight into optimizing workflows and managing complexity.
One-stop shop: in collaboration with imaging companies, Maquet can provide everything required for a hybrid operating room. This means that hospitals have one central point of contact for all their planning, sourcing and maintenance needs. Moreover, doctors and surgeons benefit from seamlessly integrated equipment.

Flexible room design: modular wall and ceiling elements allow hospitals to design every aspect of the operating room in line with their requirements.

- Easy access to medical gases and cabling
- Effective pressure regulation as individual elements are sealed to the substructure
- Surfaces can withstand all hospital-approved cleaning agents and disinfectants
- A wide selection of colors and prints ideal for creating an appealing working environment and improving the patient experience
- All wall elements can be removed in case of change of use or for renovations – such as the installation of lead lining

Modular and ergonomic: Maquet operating tables can be used for any intervention, across multiple disciplines – making them a highly cost-effective investment.

- Compatible with various angiography systems, both ceiling- and floor-mounted
- Suitable transport and operating table solutions for working with an MRT in the Hybrid OR
- Operating table solutions ideally suited for use with a CT scanner
- Interchangeable, radiolucent table tops
- Impressive panning, longitudinal and lateral shifting functions
- Synchronized with imaging equipment
- Ideal for deployment in hybrid operating rooms
- 360° radiolucent table tops for 3D imaging
- Table top for full body imaging
Maquet adapts to your needs
Choose your equipment
Choose your equipment: Maquet collaborates with imaging equipment manufacturers to deliver end-to-end Hybrid OR solutions for various disciplines including cardiovascular, neurosurgery, and traumatology.
A bright future: PowerLED lights set new standards of illumination quality, safety, convenience and operational efficiency.

- Appropriate lighting for open and minimally-invasive procedures
- A complete range catering to all needs, from vein harvesting to coronary artery bypass surgery
- Extended arm for optimized reach and ease of positioning of light head over the operating table
- HD quality camera mounted on a separate arm for an unobstructed view
- The SATELITE system, a three-tube mounting hub, allows for a multitude of customizable, upgradeable solutions such as radiation shields, flat screens and camera holders

Everything within reach: ceiling supply units (CSUs) save space, create a more orderly and ergonomic working environment, streamline workflows and increase efficiency – further enhancing the multidisciplinary use of the OR.

- Balance the need for a small footprint with capacity and load requirements
- Valuable cable and gas management tools
- Keep cables and devices off the floor – ensuring better access to the patient
- Can be configured in line with the needs of Hybrid OR teams thanks to a wide variety of distribution modules, extensions and optional accessories such as integrated LEDs

Leading-edge OR integration: TEGRIS is the control center for integrated operating rooms, improving efficiency, ergonomics and safety for patients and OR staff.

- TEGRIS reduces complexity in the Hybrid OR by centralizing video management, documentation, device control and room control on a single intuitive user interface
- Video routing for flexible use of monitors broadens the usability of the OR and supports an ergonomic working environment, while reducing the number of monitors required
- Video documentation for all video sources including endoscopy and OR light mounted cameras
- Supports live video streaming to seminar rooms or lecture halls

PowerLED: individual lights can be easily interchanged to accommodate a variety of surgical procedures.

MODUTEC Screen Solution: ceiling supply units ensure that everything is in its right place.

TEGRIS: Hybrid OR teams can easily access patient data via the central touch-screen monitor.
The MAGNUS operating table system

Exceptional flexibility

Modular and versatile, the MAGNUS operating table system is perfectly suited for Hybrid ORs. Thanks to 360° radiolucent table tops for angiography systems, and special transfer boards for MRI and CT scanners, it is ideal for image-guided interventions.

A class of its own: in terms of flexibility, modular operating table systems are worlds above the rigid angiography tables commonly found in cath labs. Fully integrated with the imaging system, MAGNUS’s universal and carbon fiber table tops are perfectly suited for a wide variety of therapies – from open surgery to interventional and hybrid procedures.

Benefits for cardiovascular procedures, interventional cardiology and radiology

- Highly precise longitudinal shift movements, with speeds of up to 150 mm/s
- Motorized X/Y table adjustment
- Synchronized movement with the angiography system preserves the position of the isocenter, ensuring excellent imaging results

Benefits for orthopedics and traumatology

- Table tops available for whole-body imaging, 360° radiolucent up to 210 cm
- Better pelvic-area imaging (inlet and outlet views)
- Ideal for spine surgery: whole-spine imaging possible, including in 3D
- Radiolucent head-positioning accessories for low-artifact imaging of cervical vertebrae, including in 3D

Benefits for neurovascular procedures

- Metal-free head-side interface and accessories such as a carbon fiber skull clamps and head rests for low-artifact imaging of vessels – even in 3D
- Smooth and precise table movements for greater patient comfort

Radiolucent accessories such as the skull clamp for neurovascular procedures are ideal for intra-operative imaging across disciplines.
Reducing complexity in the Hybrid OR
Streamlining your teams’ workflows

Boosting efficiency: the hybrid operating room is a complex environment, housing a wide range of equipment for numerous disciplines and interventions. And with the surge in high-tech medical devices, the increasing importance of digital imaging and videos, and a growing focus on documentation and interdisciplinary collaboration, effective complexity management is more important than ever. This is where TEGRIS comes in. The OR integration software from Maquet streamlines your teams’ workflows by acting as a control center for all key operating room functions.

Everything at your fingertips: from cameras and monitors to operating tables and lighting systems, TEGRIS allows OR staff to control most elements of the hybrid operating room via a single station. From a clear, user-friendly interface, they can track workflows, access patient databases, adjust room heating and ventilation, route videos and images to specific monitors – and much more besides. What’s more, teams can save their preferred video routing configurations using convenient presets.

Effective documentation: hospitals’ quality-control protocols often call for the documentation of procedures. Given the complexity of interventions that take place in Hybrid ORs and the large number of stakeholders involved, this is no easy task. TEGRIS supports documentation of all video sources, including endoscopy and OR light mounted cameras. In addition, it centralizes all documentation functions on a single intuitive user interface – enabling doctors and nurses to concentrate on their patients.

The TEGRIS user interface is the winner of the prestigious Red Dot Best of the Best 2013 award in recognition of its first-class aesthetics and highly intuitive user guidance system.

TEGRIS: The entire operating room at your fingertips

- **Video routing**
  - Management of all videos/images in the Hybrid OR
  - Picture-in-picture display function

- **Management**
  - Management of equipment such as operating table or OR lights
  - Management of room elements such as window blinds and lighting
  - Display of alerts

- **Documentation**
  - DICOM-conformant solution
  - Connectivity to RIS/PACS
  - Simultaneous recording of two HD video sources

- **Transmission**
  - Transmission of information to external and internal experts
  - Video conferencing

TEGRIS allows you to manage the Hybrid OR via a single user interface. Instead of walking across the room, you can simply move your finger across the touch screen.
The MAQUET Hybrid OR microsite provides a more detailed look at an even wider range of medical equipment, including partners’ imaging solutions. It also features possible room layouts for vascular surgery, cardiology and heart surgery, neurology, and orthopedics and traumatology, and delivers valuable advice on planning and implementation. What’s more, the microsite is continuously updated with the latest news – keeping you up to speed.

To visit the microsite, simply scan the QR code or go to: www.maquet-hybridoperatingroom.com
Getinge Group is a leading global provider of products and systems that contribute to quality enhancement and cost efficiency within healthcare and life sciences. We operate under the three brands of ArjoHuntleigh, Getinge and Maquet. ArjoHuntleigh focuses on patient mobility and wound management solutions. Getinge provides solutions for infection control within healthcare and contamination prevention within life sciences. Maquet specializes in solutions, therapies and products for surgical interventions, interventional cardiology and intensive care.