

The Siemens logo is displayed in a white box in the top left corner. The background of the entire advertisement is a photograph of three people walking through a modern, brightly lit hospital corridor with large windows and blue structural elements. A man in a white lab coat is walking alongside a woman in a grey business suit and a man in a dark business suit. They are all looking towards the right side of the frame.

SIEMENS

Feels right
at first sight

[siemens.com/go/hybrid](https://www.siemens.com/go/hybrid)

Planning hybrid

Benefit from Siemens' extensive experience in hybrid operating rooms

How does a hybrid OR
fit into my hospital?





Installing a hybrid operating room is a huge investment and every institution has its own requirements to enable a high utilization.

When planning a hybrid OR, there are lots of questions: Who will use the room? What procedures will be performed there? What are the space requirements for the equipment and team members? How will hospital workflow be affected, particularly during surgery? What's the best way to finance it and how will utilization impact return on investment?

As a rule: Proper planning enables a smooth workflow.

Siemens has already planned more than 800 operating theaters worldwide and thus has extensive experience in designing and installing customized hybrid operating rooms.



How to plan
the perfect
hybrid OR

What will we put in it?

After determination of the procedure scope, careful consideration should first be given to the imaging system. Fixed C-arms differ greatly in their space requirements, their body coverage capabilities during fluoroscopy, surgical positions to support 3D imaging, their impact on OR hygienic standards, and their level of surgical workflow integration. The imaging system forms the centerpiece of every hybrid operating room.

Siemens provides a complete portfolio of fixed C-arm systems – everything from ceiling-mounted to robot-supported imaging solutions. Its broad Artis family of imaging systems has an appropriate solution for virtually any hospital situation.

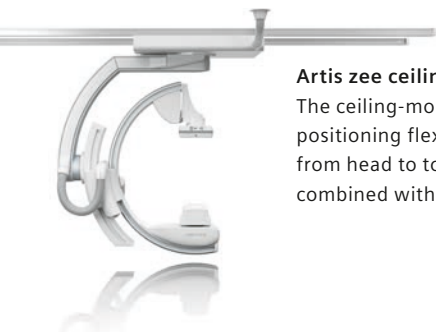






Artis zee floor and Artis Q floor

Featuring an extremely small footprint, Artis floor fits into virtually any operating room without significantly modifying the ceiling installations. A lateral C-arm position ensures full head-to-toe coverage.



Artis zee ceiling and Artis Q ceiling

The ceiling-mounted C-arm offers high positioning flexibility for 2D and 3D imaging from head to toe. The Artis Q system can be combined with Maquet and Trumpf tables.



Artis zee biplane and Artis Q biplane

With its two detectors, Artis biplane is a preferred choice for a broad range of neurosurgical and neurointerventional applications, and for treating patients for whom contrast media can pose a high risk (e.g. pediatric patients). Its second isocentric working position enables full patient coverage from head to toe.



Artis zeego

The first imaging system based on robotic technology. With its exceptional positioning flexibility, Artis **zeego** seamlessly adapts to the surgical workflow. Robot-supported systems enable unique imaging capabilities in 3D like syngo DynaCT Large Volume. As a floor-mounted unit, Artis **zeego** is ideally suited for the laminar airflow in operating rooms. It easily fulfills the high sterility standards of a hybrid OR, even for image-guided open procedures in spine surgery. In addition, system movements do not conflict with ceiling equipment such as OR lighting and imaging booms. If imaging is not needed, the system can be parked in various positions in the room – even under the ceiling. Some surgical procedures require complex positioning with segmented tabletops. With its flexible isocenter, imaging can be done even in the beach chair position. The system can be fully integrated with Trumpf and Maquet OR tables with long carbon and segmented tabletops.

How will it all work together?

Installing a hybrid operating room is a challenging undertaking

The Siemens Hybrid OR Planning Department can offer assistance in identifying key project stakeholders and ensuring that the needs of all parties are fully met. Detailed architectural room planning, including schematic drawings of floor and ceiling equipment as well as interactive 3D room models, are a great help for optimizing room utilization. Working in a hybrid environment and performing new procedures requires additional training for the entire OR staff. Other factors such as service support for key equipment are also essential. Siemens can provide assistance with all of these considerations.

- 1 Advanced imaging capabilities**
Compared to mobile C-arms, the high X-ray power of fixed imaging systems allows clear visualization of devices even in obese patients and in a lateral position. Additionally 3D guidance can be supported by fusing preoperative 3D images with fluoroscopy. To improve clinical outcomes, high-quality 3D completion imaging can be applied after finalizing the procedure.
- 2 Monitors**
Imaging information should be visible from both sides of the table. We therefore offer different concepts for displays and booms, including the Artis Large Display.
- 3 OR tables**
To support real multidisciplinary use of a hybrid operating room Siemens offers a broad portfolio of fully integrated OR tables from Siemens, Trumpf and Maquet.
- 4 Hygienic aspects**
Floor-mounted systems such as Artis **zeego** and Artis floor offer clear advantages in the OR environment. With no ceiling-mounted components, there is only minimal impact on the laminar airflow.









How can we operate it cost effectively?

Healthcare today is a dynamic and complex business with many economic challenges. System uptime, utilization, staffing and long-term profitability are key considerations with every investment. Siemens has a sizeable service portfolio to help you meet your performance and growth targets, including various financing solutions.

Helping you finance your hybrid plans

Siemens offers various financing solutions to help you realize your hybrid OR plans and proactively pursue your business objectives.

Continuous customer satisfaction

At Siemens, customer care is ongoing and takes many forms, covering everything from application training to full technical support, including equipment installation, maintenance, remote diagnostics and software upgrades. Our broad offering includes Enhanced Productivity Services such as the Siemens Guardian Program™, which proactively monitors system performance in real time to detect and resolve potential errors before malfunctions occur and to ensure optimal availability.



What to consider when installing a hybrid OR

There is no “one-size-fits-all” solution for installing a hybrid OR. Every hospital is unique. There are many different variables that may need to be taken into account (e.g. hospital size, case mix, level of IT adoption).

The following list provides a rough overview of typical factors to consider when installing a hybrid OR.

Planning

- Interdisciplinary cooperation and usage
- Interaction:
 - Clinicians and technicians
 - Specialized architects
 - Vendors of OR equipment and imaging systems
 - Engineers: power supply, infrastructure
- Virtual visualization (3D room planning)
- Visits to existing hybrid OR reference sites
- Consultation with experienced users
- Study of published cases for planning guidance

Location

- Next to existing ORs (logistics; staff; availability of intensive care, perfusionists, anesthesia, hygiene)

Room

- Size: the larger, the better, at least 50 m² (larger than a standard OR, optimal 80 m² and above)
- Additional control and technical equipment rooms, also preparation and wash rooms
- Impact of reconstructions and refurbishments on nearby rooms

Team and organization

- Awareness of the advantages/importance among future users
- Coordinator (case-by-case or long-term)
- Committed team: team-oriented, communicative, responsive

Logistics and infrastructure

- Additional storage space – next to hybrid OR
- Minimizing storage in the room
- Sufficient supplies for all specializations

Installation

- Efficient space usage
- Integration of existing IT systems
- Ceiling plan – collision avoidance
- Optimal room design for all users/disciplines

Hygiene

- Consideration of country-specific standards – flexibility of room utilization, laminar airflow, etc.
- Laminar airflow-related system restrictions
- Suitability of ceiling-mounted systems (e.g. running parts above surgical field, cleaning)
- Heat production of in-room devices

Data processing

- Ideally, in a separate room – can be difficult with already existing surgical ORs

Operating table


- Compromise: interventional – surgical
- Carbon fiber tabletop (radiolucent)
- Ability to accommodate obese patients
- Motorized table height adjustment, horizontal mobility, vertical and lateral tilt
- Rotatable
- Rails for mounting special surgical equipment (retractors, camera holder)
- Compatibility: imaging system and table
- Patient access from all sides

Monitors

- Ceiling-mounted, mobile, flexible (collision avoidance)
- Multiple video inputs in various sizes

Anesthesia

- Inclusion in planning
- Ability to adapt to the different procedures and positions position
- Devices as small as possible



Who can do all that?

Siemens has helped more than 800 customers around the world plan and install a hybrid operating room ideally suited to their specific needs – and to their future.

Partnerships with major OR suppliers
Siemens fosters long-standing partnerships with several leading OR equipment manufacturers to ensure seamless system integration and hardware compatibility.

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For accessories, go to:
www.siemens.com/medical-accessories

The statements by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

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