

Creating a cutting edge surgical complex



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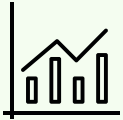
Customer

Brand new hospital campus – Singapore



Solution

25 low-turbulence flow (LTF) ceiling systems for the operating theaters and 14 LTF ceiling systems for the instrument preparation rooms.



Outcome

A complete new hospital building with an Operation Theater centre on one level. All ORs equipped with latest MANN+HUMMEL technology products.

THE CUSTOMER

As a major construction and engineering specialist, our customer was a key contractor in the development of a new health campus that would feature six blocks of seven-storey buildings. The health campus was designed to comprise of an acute hospital, specialist outpatient clinics, and community hospitals.

THE CHALLENGE

Delivering a large number of different types of operating theater is never easy. But this project was made even more difficult due to timing and events beyond anyone's control.

Go ahead for the project was granted towards the end of 2019 – just before the COVID-19 pandemic. Construction activities were severely impacted at the site, so a coordinated effort was required to ensure that the project would not be negatively impacted.





THE SOLUTION

One storey of the new hospital was dedicated to operations and it's here that we installed 25 of the latest-technology operating theaters. Each of the operating theaters was accessed via a central corridor, which also fed sterile preparation rooms, patient holding rooms, and control and scrub rooms.

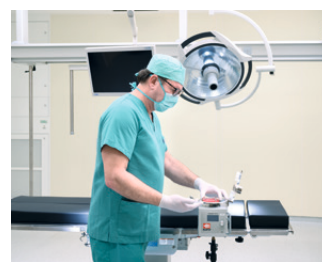
All 25 operating theaters were equipped with the latest technology LTF-ceiling systems. These systems prevent germs and particles from entering the surgical area, while creating an air flow that is imperceptible to the surgical team.

As with all our LTF systems, the 25 systems offered performance in accordance with all international standards, including DIN 1946-4, ÖNORM H6020, SWKI VA 105-01 and HTM 03-01.

A further theater was also designed as a hybrid operating room – which combines a conventional surgical room with imaging equipment and other device-based diagnostic technology (such as X-rays or MRI). This hybrid facility features a three-part ceiling system that enables the hospital to offer more minimally invasive treatments and applications, as well as a higher number of operations per day.

The MANN+HUMMEL solution comprised:

- 24 x CG³-P LTF ceiling systems (3,150 mm x 3,170 mm)
- 1 x CG³-P three part LTF ceiling system- for a hybrid operation theater
- 11 x FM³ LTF ceiling systems (2,400 mm x 1,200 mm)
- 3 x FM³ LTF ceiling systems (1,200 mm x 1,200 mm) for instrument preparation





THE RESULT

Over the course of two-and-a-half years, all 25 individual LTF-ceiling systems were manufactured and installed on site. Most of the systems were then raw installed at the end of 2022, with final installation taking place in 2023.

Following installation, we undertook validation testing of three LTF-ceiling systems - including the hybrid operation room. The outcome was positive test results without exception, which was later verified by an independent validation company. All LTF-ceiling systems passed the validation tests at the first attempt.

The new operation center opened progressively from 2023 - fully equipped with the latest technology MANN+HUMMEL products.

Enabling the surgical team to perform at its best

The MANN+HUMMEL LTF ceiling systems deliver all that's needed for the surgical team:

- Reduction of the germ load
- Removal of surgical smoke
- Occupational safety and protection of the surgical staff
- A low-turbulence displacement flow
- Stable sterile zone in the surgical field
- Maintenance of the required room pressure (protective pressure maintenance)
- Compliance with the ventilation comfort parameters, such as air speed, temperature, humidity, sound pressure level, etc.
- Seamless connection to the rest of the ceiling, and room lighting - as well as any ceiling pendants or media bridges



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We are proud to have been able to deliver a project of this size on time, despite all the challenges of the Covid-19 pandemic. This is thanks to decades of experience and our global presence in over 80 locations.

Learn more about our air filtration solutions on our website

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