



# M5 OPERATIONAL THEATRE DOOR

# M5

RADIATION DOORS

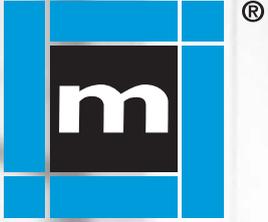
PRIMUS

ACOUSTIC DOORS

HYGIENIC DOORS



MARK US ORIGINAL



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# THE HYGIENIC DOOR FOR THE CARE SECTOR

**KONE: Market leader in hermetically sealed doors for healthcare sector. Inventor and manufacturer of the unique hermetically sealed door concept.**

**In the last two decades KONE has mainly specialised in door concepts for the care sector. Proof of which can be found in the number of differentiated door concepts that fully comply with all kind of European norms on the one hand, and satisfy the needs of modern hospitals on the other. Constant development to pace the increasing patients' demand and hospital needs.**



## M5

Thinking of wound infection, the danger of viruses, the conditions to work hygienically, or how to be energy economic and to be able to disinfect safely, the only door concept incorporating all these demands and conditions must be a hermetically sealing sliding door.

The M5 satisfies all criteria: from maintaining air hierarchy in a simple but effective way, being silent and inconspicuous in use, to realising a significant drop in noise level, all due to the hermetic character of the door concept. Easy to clean, simple to automate and designed to be used aesthetically.



# VIRUS INFECTION AND M5

## M5 a logical solution

The KONE hermetic door concept efficiently and economically maintains over- and under pressure, one of the basic demands in the operational theatre area. Of course interlock is one of the M5 features. Doors can be linked and programmed to interact. Air tightness tests have shown the M5 to be 100% air tight. In under pressure (quarantine surroundings) the M5 has no leakage at all up to no less than 400 Pa. In over pressure (operational theatre surroundings) 20 Pa difference only results in an air loss of 0.5 m<sup>3</sup>.

In respect to the present quarantine demands M5 is leading and the first to initiate new and relevant options. Hermetic sealing results in 27 dB noise reduction, a feature that cannot be overlooked in any operational theatre area.

## Hygiene

It stands to reason that hygiene is an important criterion when we have to decide on sensible and efficient applications in the hospital. The M5, being an hermetic solution, seems to come into play quickly when infections and viruses endanger a proper operational outcome. Hermetic closure will minimise the problem of micro-organisms and the spread of it. Confining and controlling the free air-flow seems to help greatly in reducing the risk of infection. Easy to clean, sliding on the outside of the theatre, moving a minimal amount of particles, non-touch systems, and a differentiated opening programme, all add to a perfectly acceptable hygienic door solution.

## Energy saving

While maintaining over- and under-pressure is a necessity and while a continuous flow of 'fresh air' will greatly contribute to a high level of hygiene, any hermetic sealing will drastically reduce energy cost.

Being a slider the M5 initiates hardly any uncontrolled air movement and consequently the particles in the air influencing the level of cleanliness, are not disturbed.

Every movement of the door, though, will inevitably influence air hierarchy. After each door movement air hierarchy needs to be restored. Again the hermetic slider M5 compartmentalises and reduces air hierarchy recovery time drastically.

Short opening and closing time further supports the energy economic character of the M5.

Differentiation between nurse-, trolley- and bed-opening will contribute to maintain energy economics, maximum hygiene and minimal disturbance of the desired air hierarchy.



## Automation and M5

The M5 is easily automated, even when we decide to this later on the M5 is fully prepared and equipped to easily undergo the change. Whenever it appears important to change to 'non-touch' systems, in case the real virus transport is still unknown, the rail system technically embeds all features to accommodate the 'non-touch' upgrading.

The actual door construction is always on the outside of the operational theatre and in addition easy to clean.

Assuming that the effective use of energy, strict following of hospital procedures, countermeasures for infections, the practical use of interlocking door positions, product reliability and a silent, inconspicuous way of door functioning, are important criteria to come to a well balanced decision in purchasing high quality hospital doors, the M5 might be an excellent choice.



## Acoustics

The inherent acoustic qualities of the M5 door contribute to a feeling of luxury and comfort when we think of minimal disturbance of the concentration and uninterrupted work-focus of the operation team during surgery. To begin with the complete door construction and thus all movements are on the outside of the operational theatre door. Therewith greatly reducing all noise springing from opening and closing the door. Moreover the M5, because of its hermetic principle, seals 100% and thus there are no air leakages that can generate irritating whistling noises, or other noises that might take away necessary focus.

The rubber gaskets of the M5 take care of a noiseless 'door-catch' of the door blade in closing, which is one of the most important features to end up with an smoothly sliding door in a high quality environment.

The M5 (27dB) helps to reduce noise interference stemming from the adjacent rooms. Bone surgery and neurology have their own specific disciplines and procedures, that unwillfully can cause disturbance and irritation, and the M5 may prove to be very helpful to overcome the problem. Noisy halls, corridors, meeting points, patients' noises, equipment having a certain noise level, all become more acceptable and applicable when the M5 noise reduction is made use of.



## Opening and closing

The M5 is a sliding door and consequently air hierarchy, air pressure differences, will have no impact on the door movements. Opening and closing time is extremely short in order to reduce air pressure losses to the bare minimum, and drastically shorten the recovery period.

No disproportionate air losses through differentiating between nurse- opening, trolley- opening and bed- opening, of the door.

The automation is 'high tech' and software controlled. Minimal adjustments will allow her to be linked with building control systems. It has a 'history readout' option in order to quickly recover failures or improper use of the door. A 'service code line' which allows the hospital technicians to perform a first scan to do an immediate check on basic door features.

The automation is self regulating. It automatically matches door weight and door speed, it has short



memory reading of obstacles. Should the door fail to close because of an obstacle is in the way, the door will fully open again and restart its closing cycle but still remember that an obstacle is in the way, and automatically slow down to prevent bumping into it.

## Easy to install

No special constructional features are necessary to install a standard M5. No special door casing, and no sill.

Although hermetic sealing demands a high level of accuracy, the M5 construction can easily cope with normally accepted constructional tolerances without affecting proper sealing or sealing quality in any way.

The KONE wall frame and door are installed at the same time avoiding discrepancies in dimensions, communication problems and other failures.

The sliding principle is flexible in respect to wall opening dimensions.





## SPACE SAVING AND THE M5

### Sliding doors generate extra space

Besides the fact that a slider is a lot more functional in use than a hinged door, think of dimensions, door blade weight, and sealing, the construction is extremely helpful in case of limited working areas, narrow corridors, necessary activities next to the door opening.

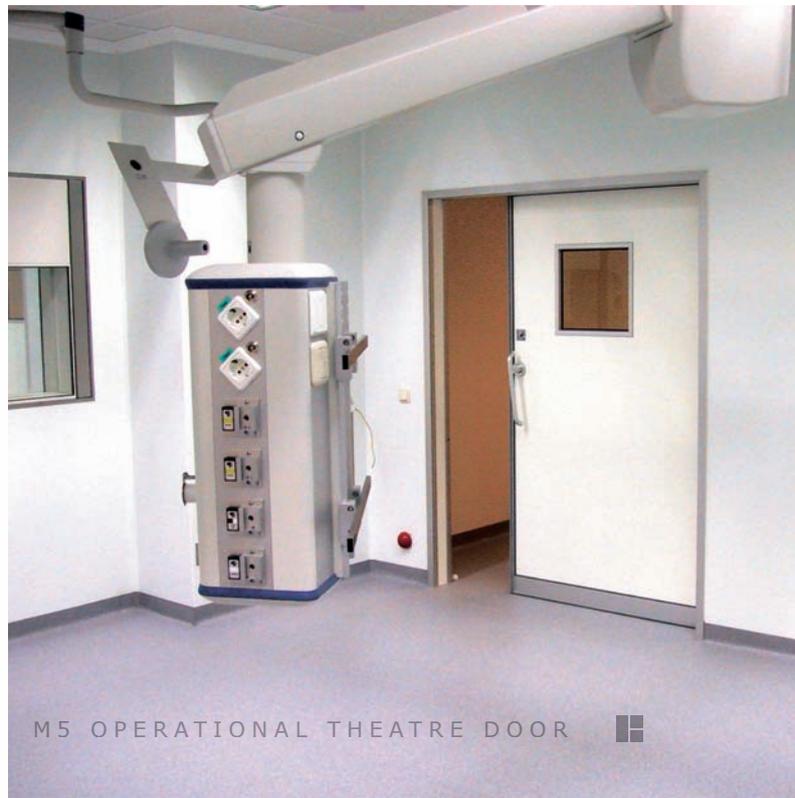
A slider becomes even more important when we think of disabled people, patients using a wheelchair, crutches or those who are spastic and are unable to control their movements. The M5 has no sill and provides a smooth and easy passage for every patient no matter what his disability is.

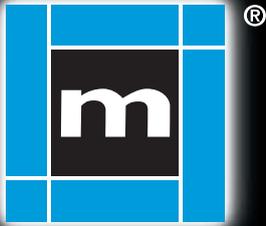
All situations in which a slider is far more user friendly than a hinged door.

### M5 open to options

Because every Public Health Service is likely to be faced with new demands all the time, such as: new and unknown viruses, stricter hygienic demands, increased patient numbers, sudden peak demands to cope with calamities, and other challenges, the M5 has been designed to grow with these changes.

A manual slider can be easily automated. Non-touch system can be added to the door and a variety of security measures, when needed, can be incorporated to suit any future hospital demand.





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KONE provides innovative and eco-efficient solutions for elevators, escalators and automatic building doors. We support our customers every step of the way; from design, manufacturing and installation to maintenance and modernization. KONE is a global leader in helping our customers manage the smooth flow of people and goods throughout their buildings.

Our commitment to customers is present in all KONE solutions. This makes us a reliable partner throughout the life-cycle of the building. We challenge the conventional wisdom of the industry. We are fast, flexible, and we have a well-deserved reputation as a technology leader, with such innovations as KONE UniDrive® and KONE Hermetic Sealing Doors. You can experience these innovations in architectural landmarks such as the Philips headquarters in Eindhoven, the Netherlands; the Sahlgrenska Sjukhuset hospital in Gothenburg, Sweden; and the Academic Medical Center in Amsterdam, the Netherlands.

KONE employs approximately 34,000 dedicated experts to serve you globally and locally in over 50 countries.

KONE Corporation

M5

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