Elevator Technology

TWIN

2 cabs, 1 shaft, 0 crowds.

thyssenkrupp

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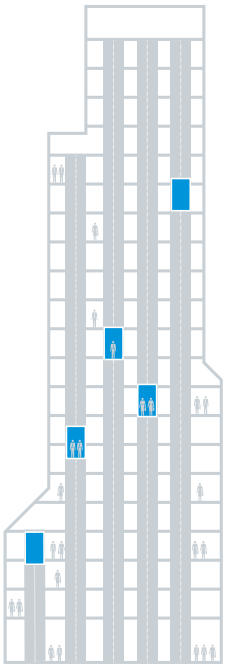
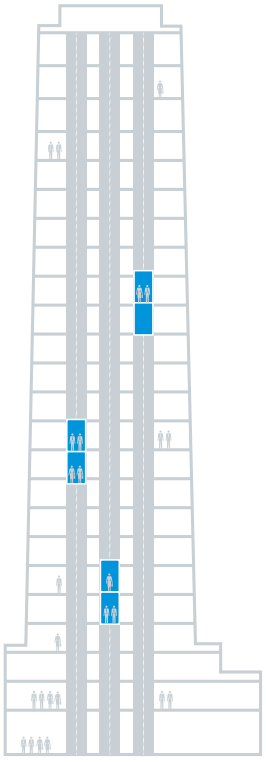
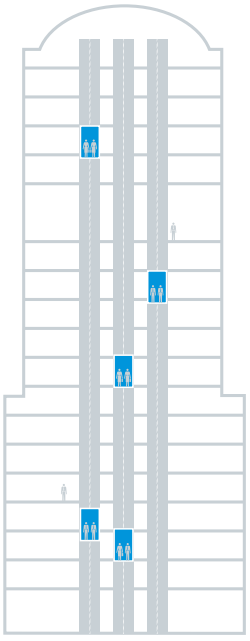


Traditional elevators in tall buildings require a single shaft per cab – that's a large footprint that wastes leasable space.



Double-decker elevators move people by fixing two cars one on top of the other. This solution uses power to move empty cars. And since the cars are fixed, the floor heights must be the same, limiting design options.



TWIN requires fewer shafts, works with different floor heights and only stops on floors where passengers want to get in or out.

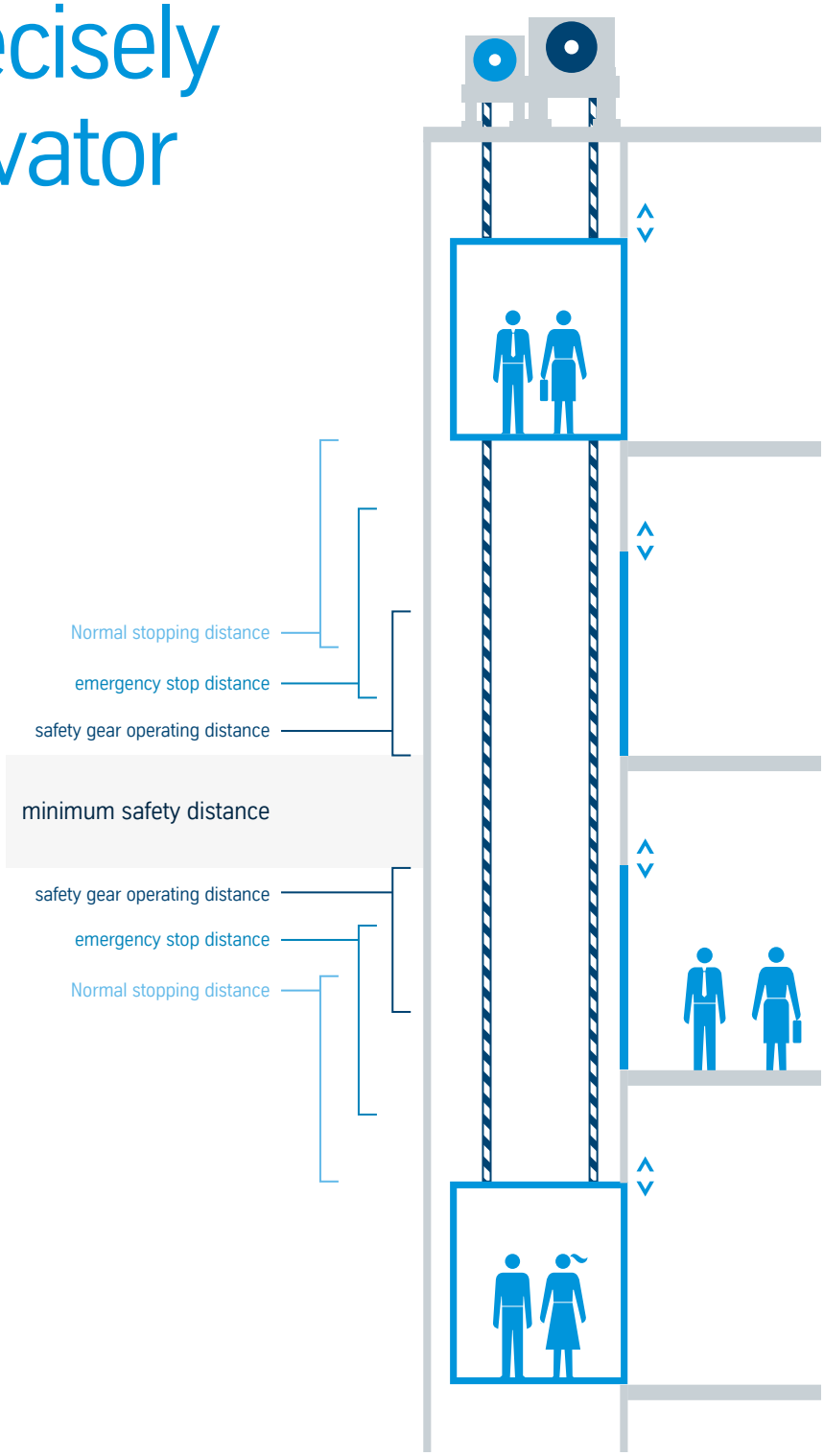
City populations are expected to increase by nearly 2.5 billion inhabitants by 2050. And each day, those people will need to move, making efficient mobility in buildings no longer a luxury but an absolute necessity.

At thyssenkrupp Elevator we have engineered TWIN, a solution to maximize building footprints, minimize wait times and keep people – billions of them – safely on the move.

TWIN, a precisely efficient elevator system.

Two independent cars in one shaft saves space

The TWIN elevator system has two cars, arranged on top of each other, that operate independently in one shaft. Each elevator has its own traction drive, controller, ropes, counterweight and governor and share the same guide rails and landing doors.



The key to the system's safety is that the cars always operate at a minimum safety distance.

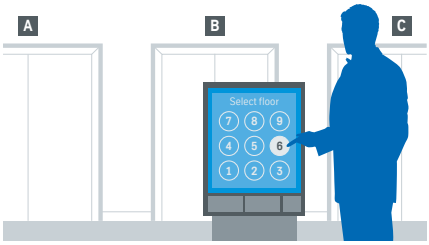
It starts with a smart move.

Here's the new arrangement. Composed of intelligent controller algorithms - the destination selection control (DSC) software - as well as perfectly matched operating panels and pedestals, AGILE – Destination Controls intelligently groups together passengers who are traveling to similar floor destinations.

Unlike conventional operation, a floor is chosen at the AGILE – Destination Control terminals in front of an elevator group and the intelligent dispatching software analyzes the request – gauging traffic demand and grouping passengers based on similarity of destination. This leads to less crowding, fewer stops and a more efficient use of available elevator capacity.

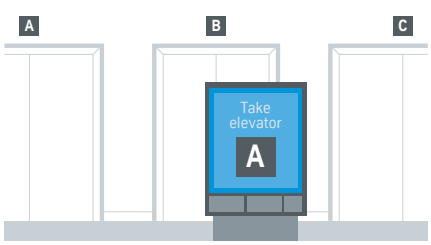
Step 01

Passengers use the terminal to select their floor. You can add custom button labels and logos to make the process even easier.



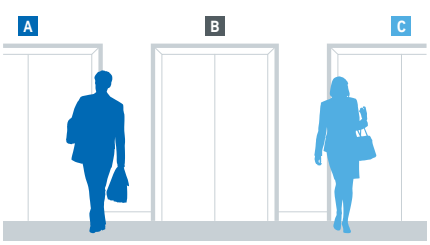
Step 02

AGILE terminal clearly directs each passenger to an assigned elevator.



Step 03

Passengers board the assigned elevator that transports them to their destination.

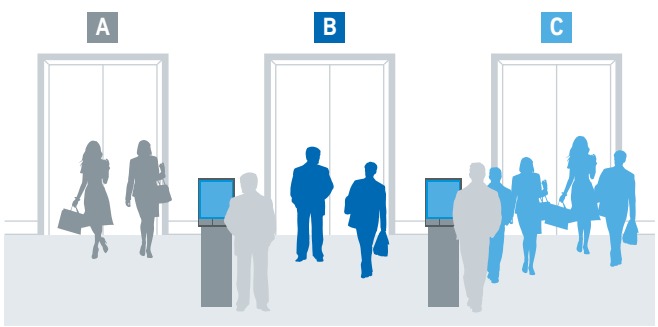


Conventional operation

Passengers crowd into lobbies and press elevator push buttons, which can only register limited information — basically just single "up or down" requests. In turn, the passengers board the first elevator to answer the call.

AGILE – Destination Controls operation

Passengers use a terminal to select their floor. The intelligent dispatching software collects their information, analyzes their requests, gauges traffic demand and groups them based on similarity of destination.



How TWIN can help you.

Handle more traffic

Whether used in new buildings or as part of a modernization project, TWIN can transport up to fourty percent more passengers.

Save money

TWIN drastically cuts labor and materials expenses by sharing a single shaft, guide rails and landing doors. TWIN pays dividends for years to come.

Reduce energy consumption

Unlike a double-deck elevator system, TWIN can park one cab while the other stays in operation. So when passenger volumes are low, no energy is consumed moving empty cars. Furthermore, all TWIN elevator systems can be equipped with an energy recovery function which can feed about 30 percent of the energy generated by braking back into the building's power grid.

Leaving nothing to chance.

Safety is standard with TWIN

We provide four levels of safety to prevent two TWIN cabs in the same shaft from getting too close to each other.

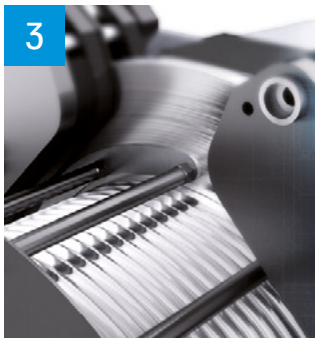
1

Intelligent allocation of calls
Requests are always distributed by the destination selection control so elevator cars do not obstruct each other and a minimum distance is always observed.

2

Monitoring of minimum safety distances
The minimum separation of the cars is monitored automatically to ensure the cars are kept at a safe distance.

3



Emergency stop function
If the safety distance is breached, the system shuts down the drives, activates the brakes and triggers an emergency stop for both elevator cars.

4

Automatic engagement of the safety gear
In the unlikely event that the first three safety stages fail, the safety gears of both the elevator cars are activated. It is not possible for the elevator cars to make contact.

- TWIN is in compliance with ASME A17.7/CSA B44.7; A17.7 specifically intended for new elevator technololgy and practices.
- Safety level 3 and 4 will be monitored by an independant control system according to EN81-20/50 PESSRAL- giving TWIN the highest safety classification of Safety Integrity Level 3 (SIL3).
- CE Type certified.
- System satisfies the regulations in accordance with elevator directive 2014/33/EU and EN 81-20/50 (EU Type examination safety components) and approved code deviations (by TWIN EU design examination).
- Fully certified by the German TÜV inspectorate – the most stringent and rigorous safety standard an elevator can attain.

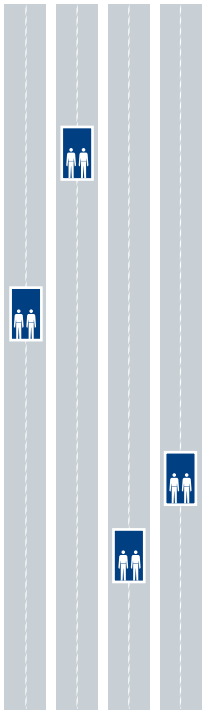
Move more with less.

TWIN for new installations

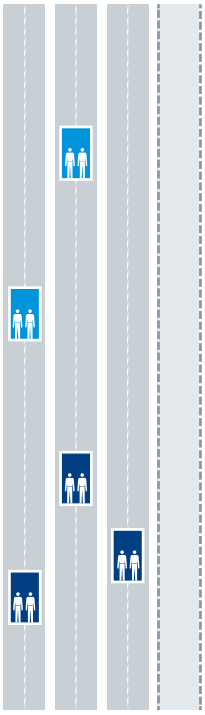
- Significantly more handling capacity with fewer elevator shafts compared to conventional elevators
- Save money by reducing the construction needed to build more elevator shafts
- Increase your leasable space

TWIN for modernization projects

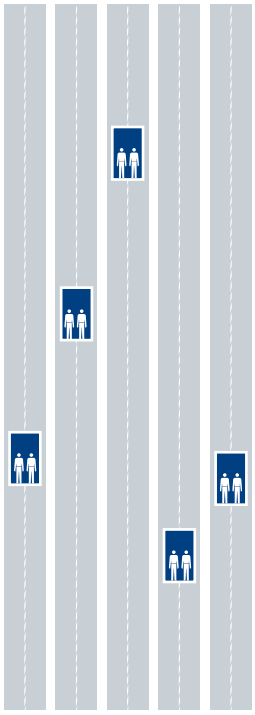
- Transport more passengers with two elevator cars in one shaft
- Replace elevators that can no longer handle the building capacity and passenger comfort
- No need to build new shafts and you may even reduce the number of elevator shafts you already have
- Free up space to route data technology or install an air-conditioning system



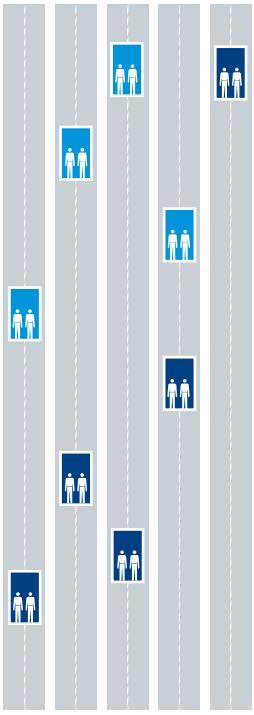
Conventional



TWIN
one shaft less



Conventional



TWIN

TWIN makes the case.

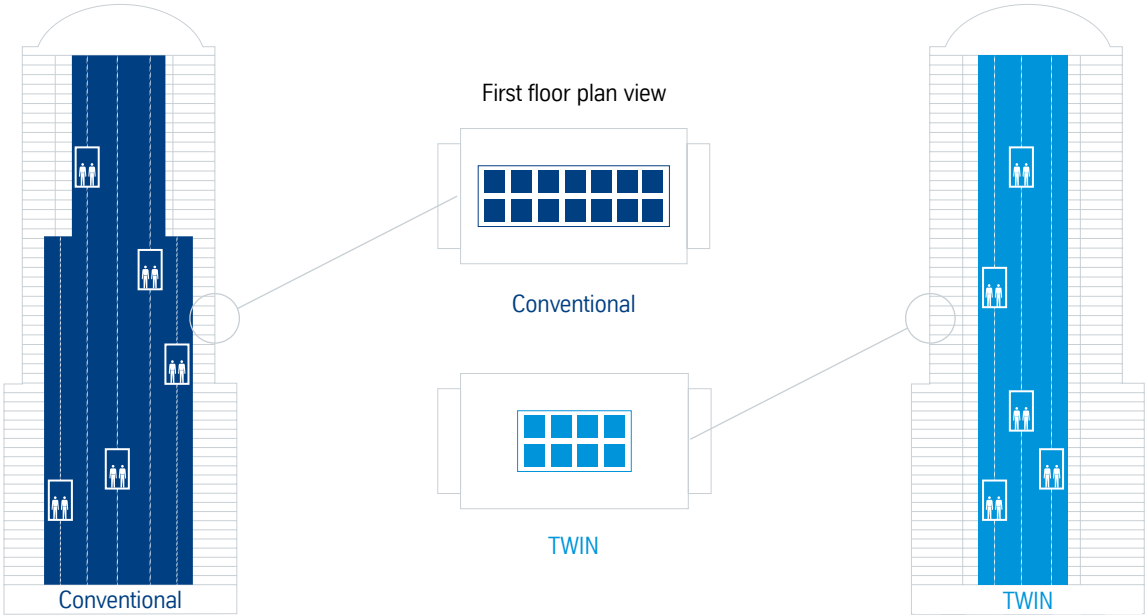
Challenge: Minimize the space needed for elevators to increase leasable office space.

Solution: TWIN elevator systems reduced space needed for the elevators by 2,700 m² (29,000 square feet) – an increase of 6 percent of leasable space.

The 13-floor office, St. Botholph Building in London houses eight TWIN elevators, which is the world's largest group. In the planning phase, it was determined the building population of 5,000 people would need two groups of six to eight conventional elevators and the construction of 14 shafts.

Next, a double-deck installation was considered. However, that undesirable alternative required a large amount of shaft head height, heavy cars and meant that all the floors would have to be the same height. By using eight TWIN systems, only eight shafts were required and less power was needed to move lighter cars. There were also less space requirements in the shaft head and machine rooms, which increased leasable space, less energy and reduced construction cost.

Higher handling capacity, smaller core



TWIN is the only elevator system with two cars that move independently in one shaft. Simply put, TWIN makes the most efficient use of available space, uses less energy and quickens the pace of building tenants all over the world. thyssenkrupp Elevator knows that the time to develop advanced people-moving technology is now and now is the time for TWIN.

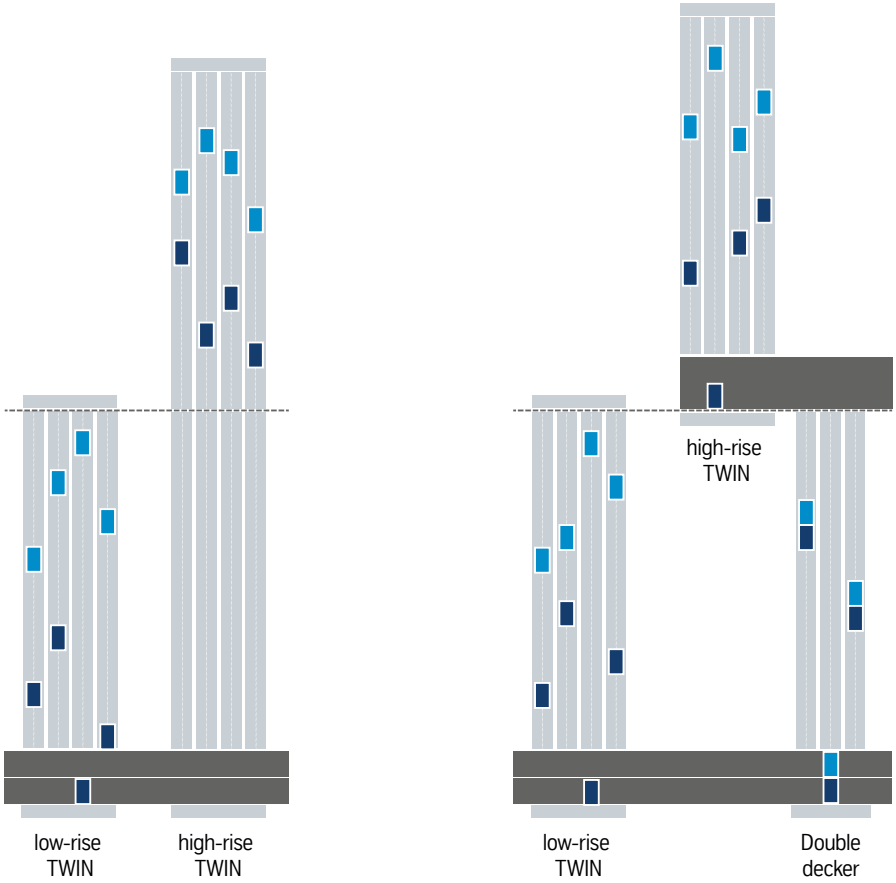
Special planning. Groups of elevators with TWIN.

As a rule of thumb, one elevator group is sufficient for buildings with up to 35 landings. For buildings with more than 35 landings, a division into low-rise, medium-rise or high-rise groups is recommended.

Configurations using distribution floors and transfer levels as well as shafts “stacked” one above the other is recommended. These groups are usually located in the projection area of groups of elevators underneath and are linked to the ground floor landing by express elevators.

During the morning rush hour, the TWIN system divides the shaft into “virtual zones” in the area where both elevator cars can move independently from one another. Passengers in the upper zone of the building enter the TWIN elevator car via the upper access level. The same principle applies to the lower elevator car and the lower zone of the building. After the morning peak traffic, the virtual zones are “opened” and both TWIN elevator cars serve the complete shaft.

When installing a TWIN system, it makes sense to provide two access levels connected by escalators. This will be the most efficient way to improve the traffic within your building!



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