

Elevator Technology

TWIN

2 cabs, 1 shaft, 0 crowds.



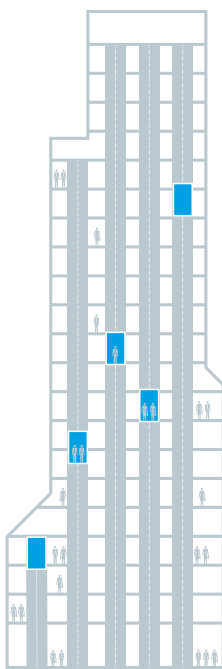
thyssenkrupp



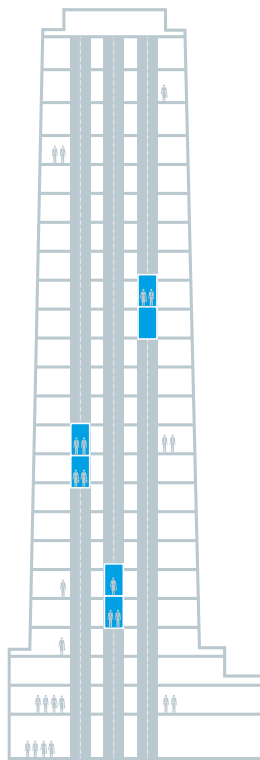


TWIN.

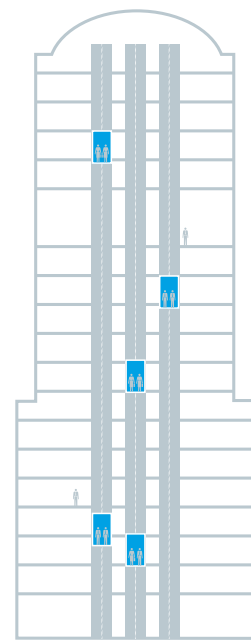
2 cabs, 1 shaft, 0 crowds.



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 maximise building footprints, minimise wait times and keep people – billions of them – safely on the move.

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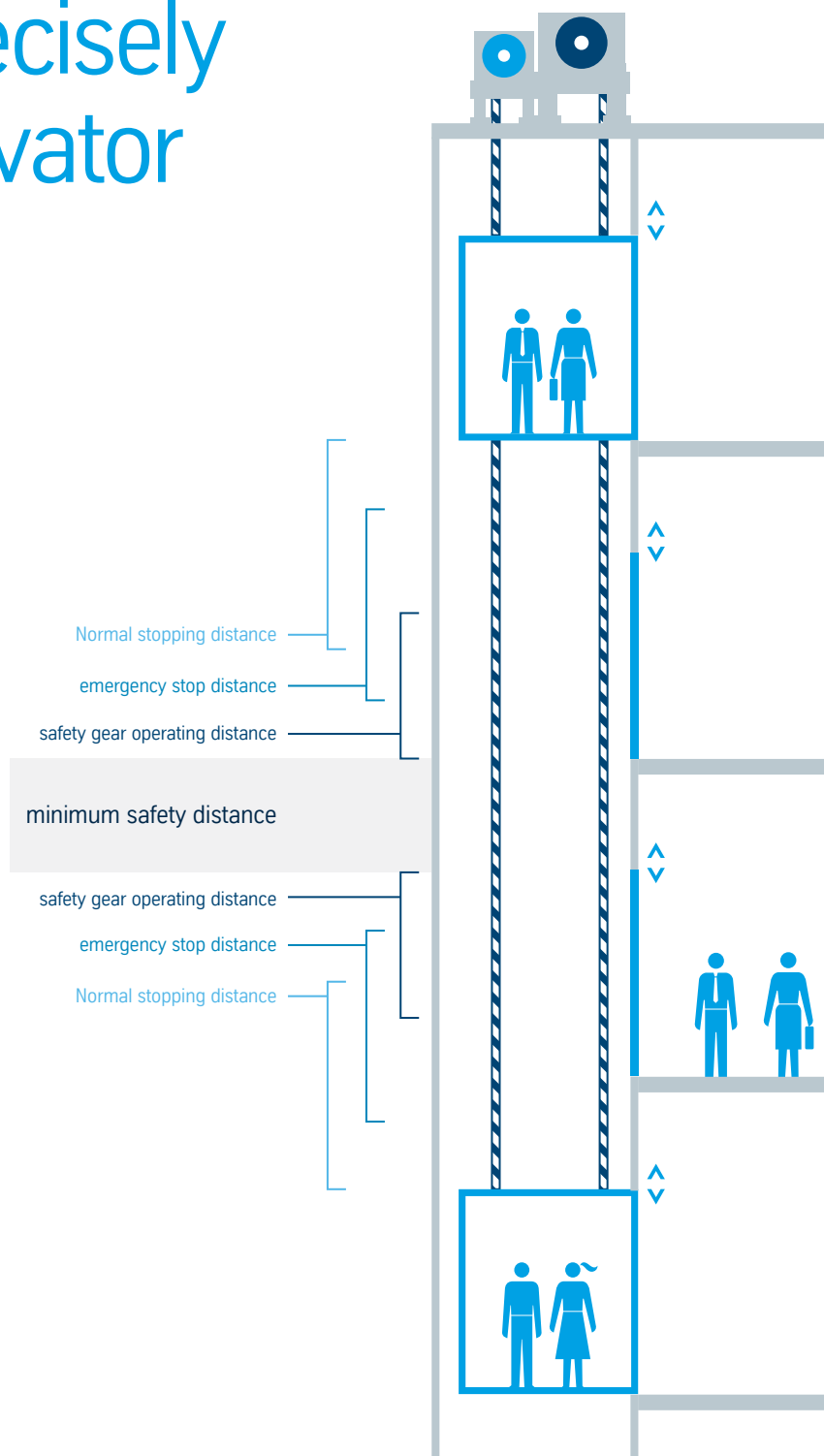
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TWIN, a precisely efficient elevator system.

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.

The efficiency of TWIN relies on the intelligent Destination Selection Control (DSC). DSC is like a concierge that directs passengers to the elevator that will get them to their destination fastest. It groups people travelling to the same floor together, making fewer stops and improving efficiency to keep tenants on the move.

Before passengers step on the elevator, they enter their destination floor on a keypad in the elevator lobby. Next the DSC system groups passengers with the same destination to the same car. So interruptions from passengers who enter and exit the elevator at intermediate stops are kept to a minimum.

Elevator passengers can also benefit from pre-programming, which enables them to swipe an ID card or enter a numeric PIN code. Corporate branding can be added to touch screen terminals. VIP/emergency call overrides give tenants immediate access to an elevator. If you need to restrict access in your building, DSC can help with this too.

1 Touch screen or keypad is used to call an elevator.



2 DSC kiosk directs each passenger to the most efficient elevator.

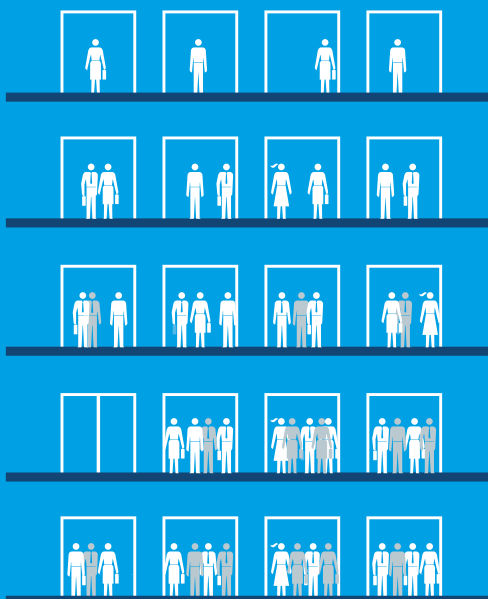


3 Passengers arrive at their destinations faster.



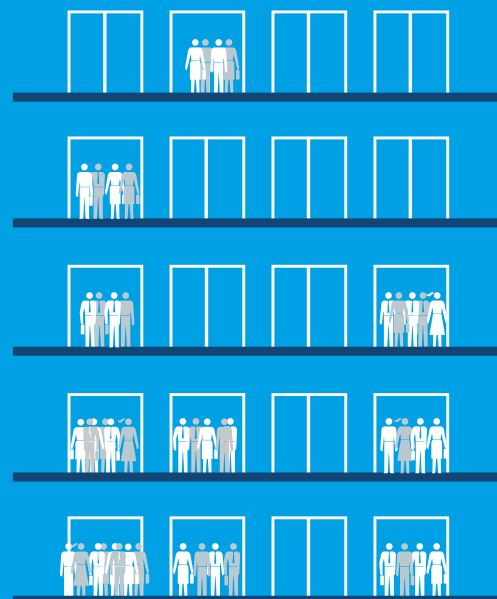
Traditional dispatching


16 Passengers, 15 Stops



DSC dispatching

16 Passengers, 4 Stops





How TWIN can help you.

Handle more traffic

Whether used in new buildings or as part of a modernisation project, TWIN can transport up to forty 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.

- Fully certified by the German TÜV inspectorate – the most stringent and rigorous safety standard an elevator can attain.

- Safety level 3 and 4 will be monitored by an independent 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).

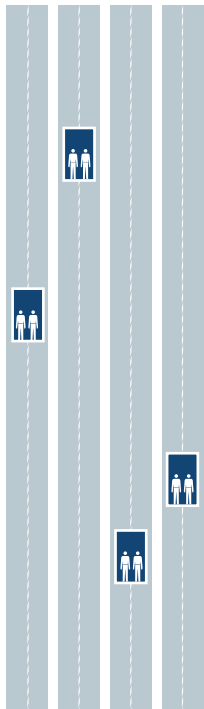
Move more with less.

TWIN for new installations

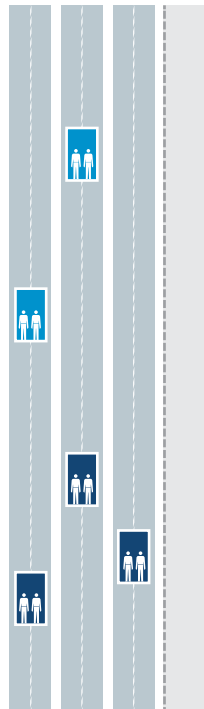
- Significantly more handling capacity with fewer elevator shafts compared to conventional elevators
- Save money by reducing the construction needed to build more elevator shafts
- Increase your leasable space

TWIN for modernisation projects

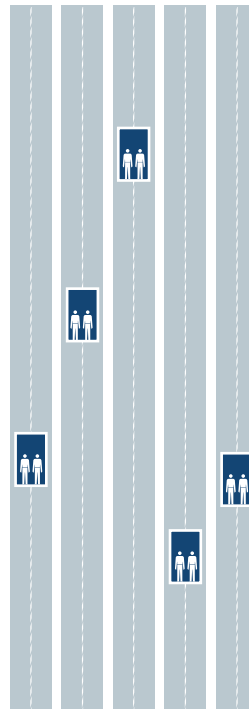
- Transport more passengers with two elevator cars in one shaft
- Replace elevators that can no longer handle the building capacity and passenger comfort
- No need to build new shafts and you may even reduce the number of elevator shafts you already have
- Free up space to route data technology or install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



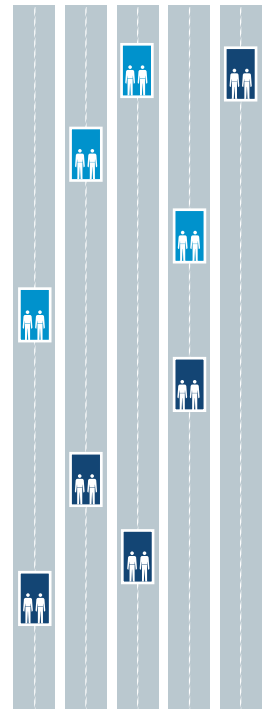
Conventional



TWIN
one shaft less



Conventional



TWIN

TWIN makes the case.

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

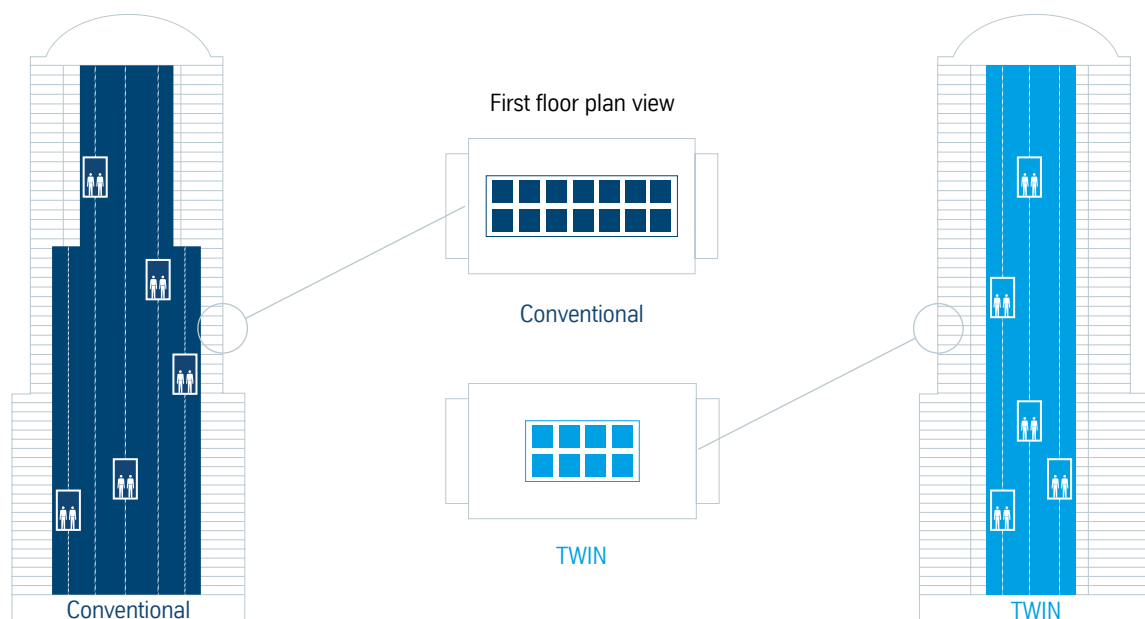
Solution: TWIN elevator systems reduced space needed for the elevators by 2,700 m² – an increase of 6 percent of leasable space.

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 quickens
the pace.

TWIN®
more space

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.

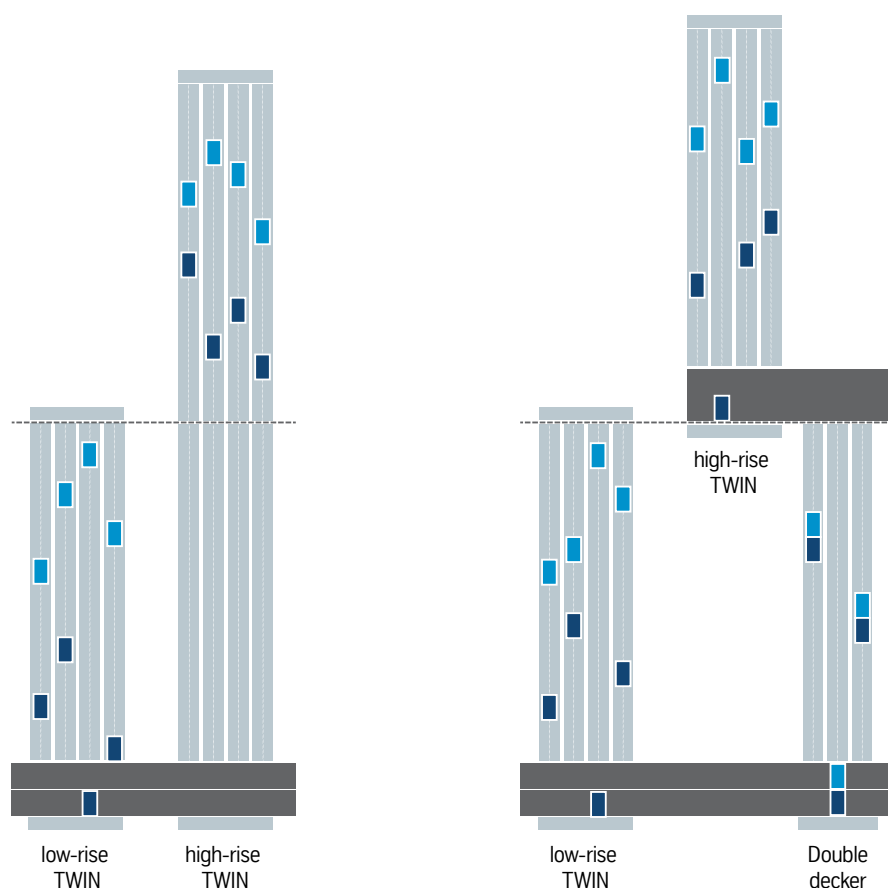
As a rule of thumb, one elevator group is sufficient for buildings with up to 35 landings. For buildings with more than 35 landings, a division into low-rise, medium-rise or high-rise groups is recommended.

Due to travel height restrictions of approximately 250 m, 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 peak 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!



Sydney Head Office

Shed 73, The Woolstores
3/4E Huntley Street
Alexandria, NSW 2015
Ph: +61 2 8303 9030
Email: au.sydney@tkeap.com

Queensland

Kingsford Smith Corporate Park
Unit 2, 16 Theodore Street
Eagle Farm QLD 4009
Ph: +61 7 3252 4422
Email: au.brisbane@tkeap.com

Gold Coast

6/507, Olsen Avenue
Ashmore Qld 4214
Ph: +61 7 5564 9725
Email: au.goldcoast@tkeap.com

Canberra

Unit 4, 65 Tennant Street
Fyshwick ACT 2609
Phone: +61 2 6280 9988
Email: au.canberra@tkeap.com

Victoria

Unit 8/344, Lorimer Street
Port Melbourne Vic 3207
Ph: +61 3 9682 5300
Email: au.melbourne@tkeap.com

Perth

259 Beaufort Street
Perth WA 6000
Ph: +61 8 9228 8771
Email: au.perth@tkeap.com

Adelaide

74 Chapel Street
Thebarton SA 5031
Ph: +61 8 8443 3455
Email: au.adelaide@tkeap.com

Tasmania

C/O Victoria Branch
Unit 8/344, Lorimer Street
Port Melbourne Vic 3207
Ph: +61 3 9682 5300
Email: au.hobart@tkeap.com

www.thyssenkrupp-elevator.com.au



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