TWIN – THE UNIQUE MOBILITY SOLUTION FROM TK ELEVATOR

2 cabs. 1 shaft. 0 crowds.

MOVE BEYOND

THIS IS TWIN

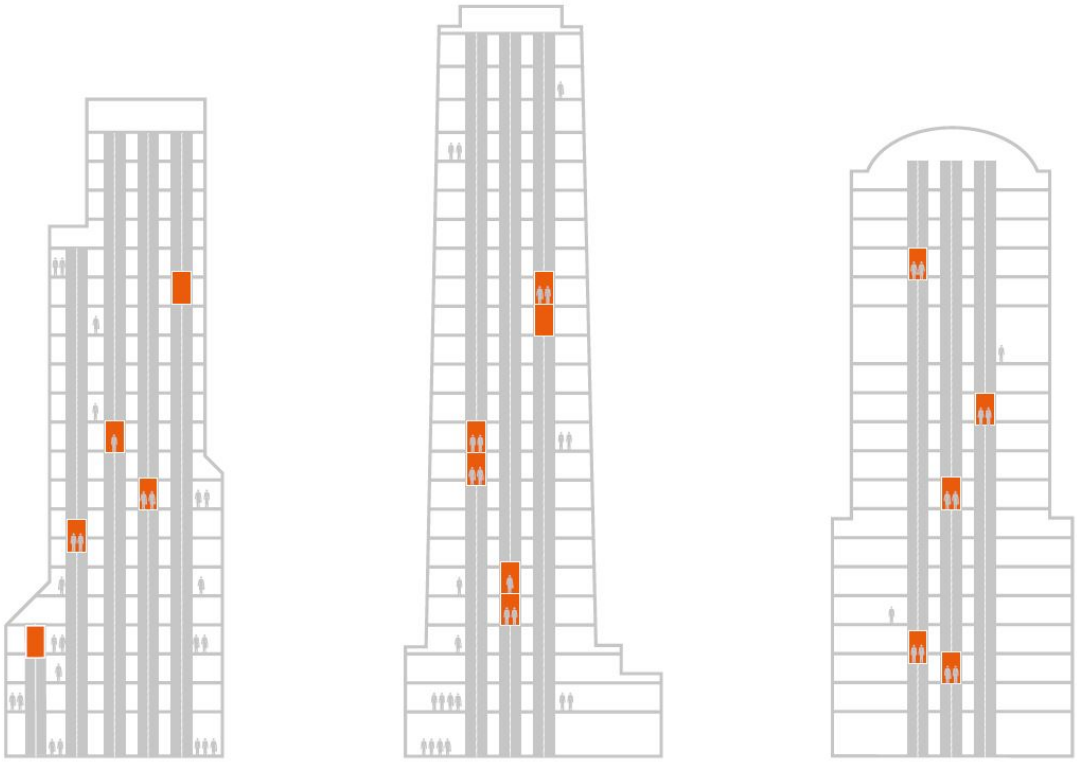
TK Elevator's one-of-a-kind TWIN passenger lift is the world's first system with two independent cars – one on top of the other, in one shaft. It gives you the same conveyance capacity in 25% less space. It also lets you introduce brand-new traffic concepts while setting a new standard in high performance.

With two cars which operate independently in the same hoistway, for unrivalled efficiency in buildings over 50 metres high. It's just what you need when you have common areas on several levels, such as in hotels, offices, hospitals and educational institutions.

Efficient mobility in buildings thanks to TWIN

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 TK Elevator we have engineered TWIN, a solution to maximise building footprints, minimise wait times and keep people – billions of them – safely on the move.



Traditional elevators in tall buildings require a single shaft per cab – that's a large footprint that wastes leasable space. A situation that could be optimized with other people mobility solutions.

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.

TWIN, a precisely efficient elevator system

Two independent cabins in one shaft saves space.

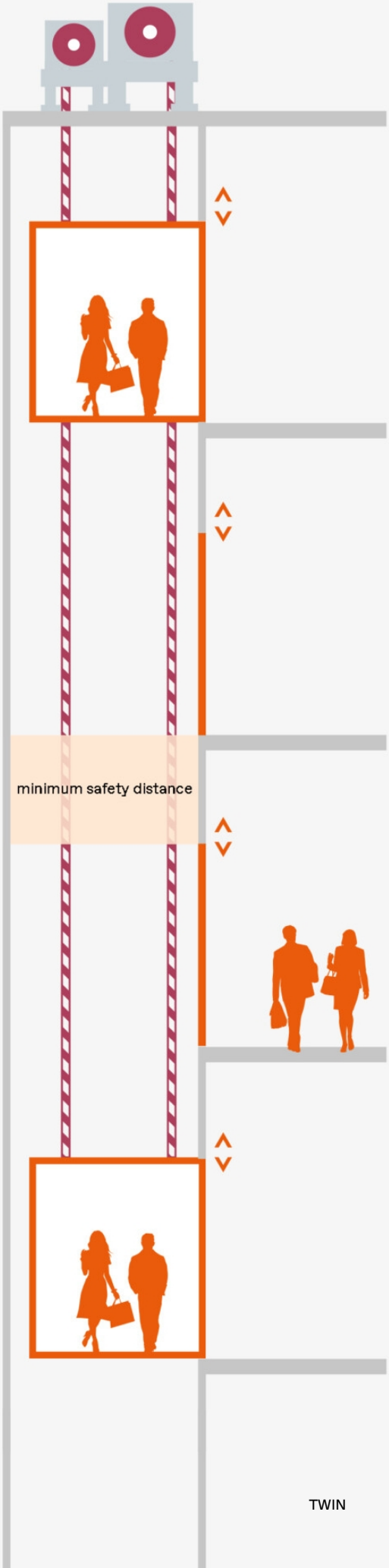
The TWIN elevator system has two cabins, arranged on top of each other, that operate independently in one shaft. Each elevator has its own traction drive, controller, ropes, counterweight and governor and share the same guide rails and landing doors.

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

Technical specs at a glance

Travel height: 250 m
Maximum speed: 7.0 m/s
Maximum capacity: 1,800 kg*

*Higher capacities on request

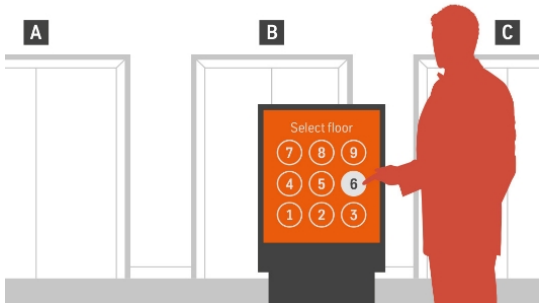


It starts with AGILE – Destination Controls

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 operations, a floor is chosen at the AGILE – Destination Control terminals in front of an elevator group and the intelligent dispatching software analyses 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.

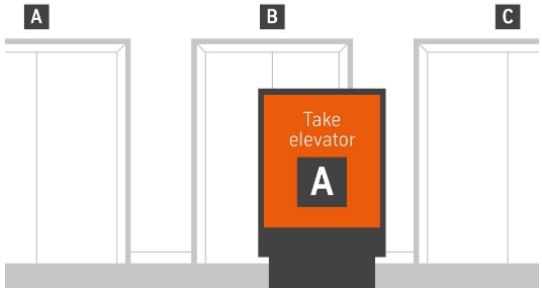
Step 01

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



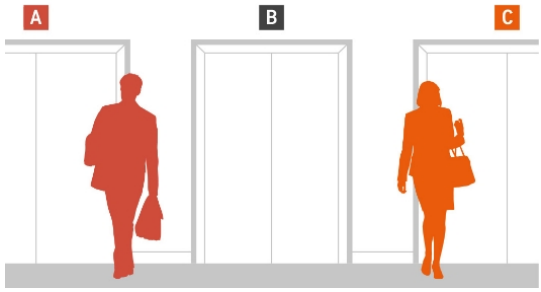
Step 02

AGILE terminal clearly directs each passenger to an assigned elevator.



Step 03

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



Conventional vs. AGILE operation

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, analyses 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 modernisation project, TWIN can transport up to 40% more passengers.

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

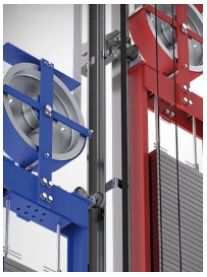
Reduce energy consumption
Unlike a double-deck elevator system, TWIN can park one cab while the other stays in operation. So when passenger volumes are low, no energy is consumed moving empty cars. Furthermore, all TWIN elevator systems can be equipped with an energy recovery function which can feed about 30% 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.

Intelligent allocation of calls

Requests are always distributed by the destination selection control so elevator cabins do not obstruct each other and a minimum distance is always observed.

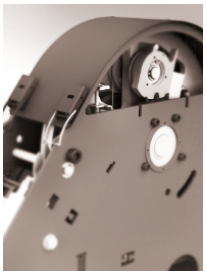


Monitoring of minimum safety distances

The minimum separation of the cabins is monitored automatically to ensure the cabins are kept at a safe distance.

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 cabins.



Automatic engagement of the safety gear

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

Approved safety

- TWIN is in compliance with ASME A17.7/CSA B44.7; A17.7 specifically intended for new elevator technology and practices.
- Safety levels 3 and 4 are monitored by an independent control system according to EN81-20/50 PESSRAL – giving TWIN the highest safety classification: 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.

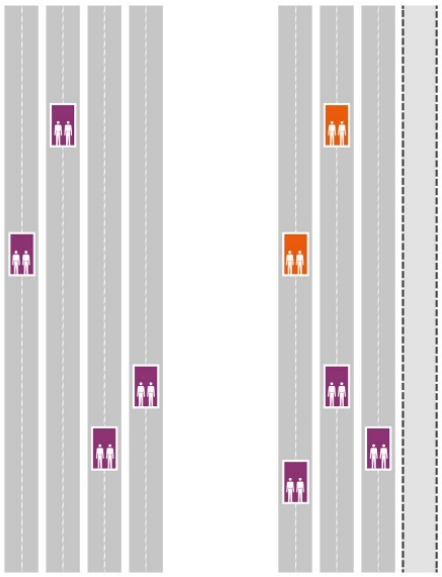
Move more with less

Choose TWIN for your New Installation in optimized orchestrated cooperation with other elevator systems – or for your Modernisation project to add more cabins in existing shafts to enhance capacity.

TWIN for New Installations

- Enjoy 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

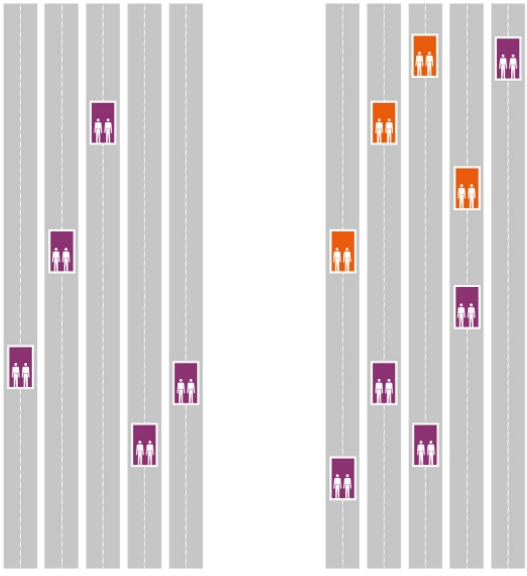
In the building in the picture on the left, you can see a group with four conventional elevators. The building on the right uses two TWIN systems and one conventional elevator, reducing the number of shafts by 25%.



TWIN for Modernisation

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

In the building in the picture on the left, you can see a group with five conventional elevators. After the modernisation of the building (on the right), you can see that four of the conventional elevators have been replaced by TWIN systems, increasing capacity for the tenants.



TWIN MAKES THE CASE

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

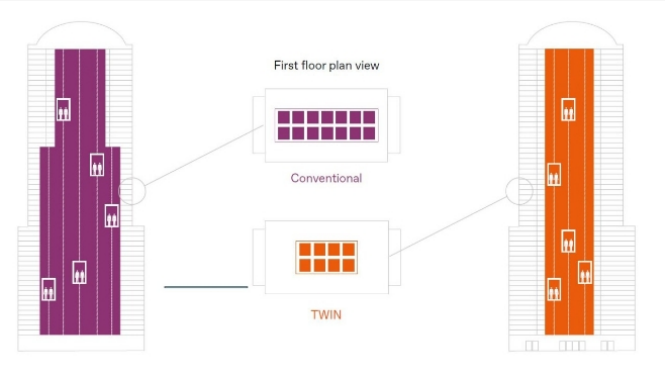
Solution: TWIN elevator systems reduced space needed for the elevators by 2,700 m² (29,000 square feet) – an increase of 6% of leasable space.

The St. Botolph Building in London houses eight TWIN elevators, which is the world's largest group. In the planning phase, it was determined that the 13-floor office building's population of 5,000 people would need two groups of 6 to 8 conventional elevators and the construction of 14 shafts.

A double-deck installation was also considered. However, that alternative required a large amount of shaft head height, heavy cabins and meant that all the floors would have to be the same height. By using 8 TWIN systems, only 8 shafts were required and less power was needed to move lighter cabins. There were also fewer space requirements in the shaft head and machine rooms, which increased leasable space, required less energy and reduced construction cost.

Higher handling capacity, smaller core

In the drawing you can see the space needed for elevators in the building core – without (left) and with (right) TWIN systems. In the middle you see the first floor plan and the amount of saved floor space.



TWIN QUICKENS THE PACE

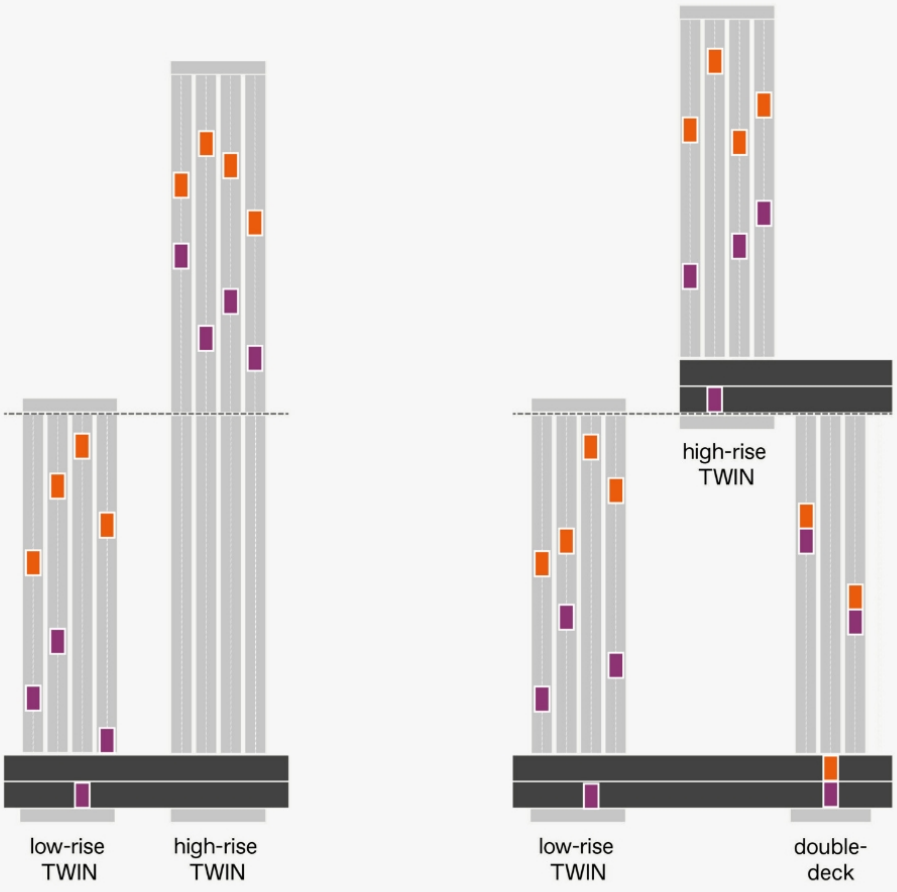
TWIN is the only elevator system with two cabins that move independently in one shaft. Simply put, TWIN makes the most efficient use of available space, uses less energy and quickens the pace of building tenants all over the world. TK Elevator knows that the time to develop advanced peoplemoving technology 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 cabins can move independently of one another. Passengers in the upper zone of the building enter the TWIN elevator cabin via the upper access level. The same principle applies to the lower elevator cabin and the lower zone of the building. After the morning peak traffic, the virtual zones are “opened” and both TWIN elevator cabins 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!



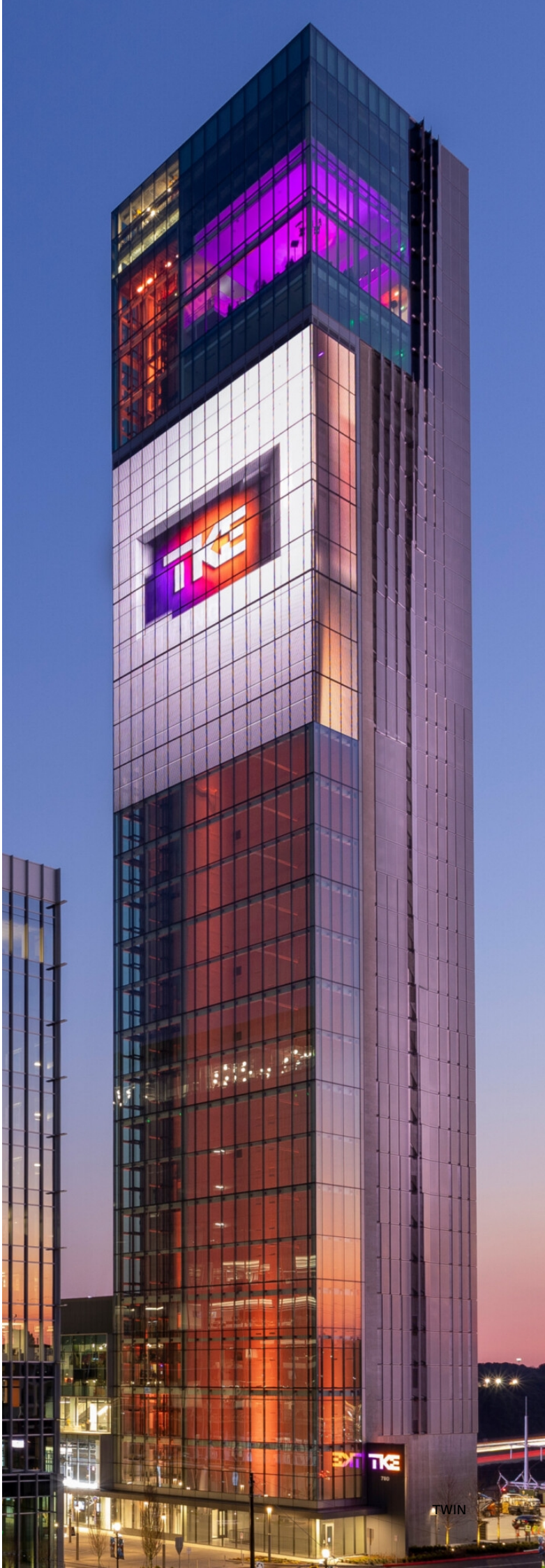
About TK Elevator

We are elevator people. Striving to move the world. Known for a passion for technology with service at the heart of our business.

Over the past decades, TK Elevator has established itself as one of the world's leading elevator companies and became independent after its sale by thyssenkrupp AG in August 2020. To our customers in over 100 countries we provide an extensive service network that guarantees close proximity, with more than 1,000 locations and over 50,000 employees. TK Elevator's most important business line is our multi-brand service for mobility solutions represented by over 24,000 service technicians.

Our new installation product portfolio ranges from commodity elevators for residential and commercial buildings to cutting-edge, highly customised solutions for state-of-the-art skyscrapers. What's more, it also consists of escalators and moving walks, passenger boarding bridges, stair and platform lifts. Integrated cloud-based service solutions are gaining in importance. These digital offerings mean there are no longer any limits to urban mobility.

TK Elevator. Move beyond.



TKELEVATOR.COM

TK Elevator GmbH
E-Plus-Strasse 1
40472 Düsseldorf
Germany
info@tkelevator.com

TWIN brochure en-TKE v10/05/2023