

# ACCEL

Fostering urban mobility



thyssenkrupp





# A new game-changing transportation system

## ACCEL: Shortening connecting times at Airports and Metros

It provides an efficient solution to the dominating global challenges of urbanization – alleviates traffic congestion by improving access to metro stations and attracting up to 30% additional passengers. In airport terminals it offers a reduction of connection times between gates by up to 70%.

### Summary features

#### High-speed

- Max. speed of 2 m/s
- Time savings up to 70%

#### Easy to use

- Safe, comfortable ride
- No instructions required

#### High-capacity

- 7,300 pphpd
- (people per hour per direction)

#### Easy fit

- No major impact on the construction
- Clever layout

#### Continuous movement

- No waiting time/areas
- No stations

#### Product Range

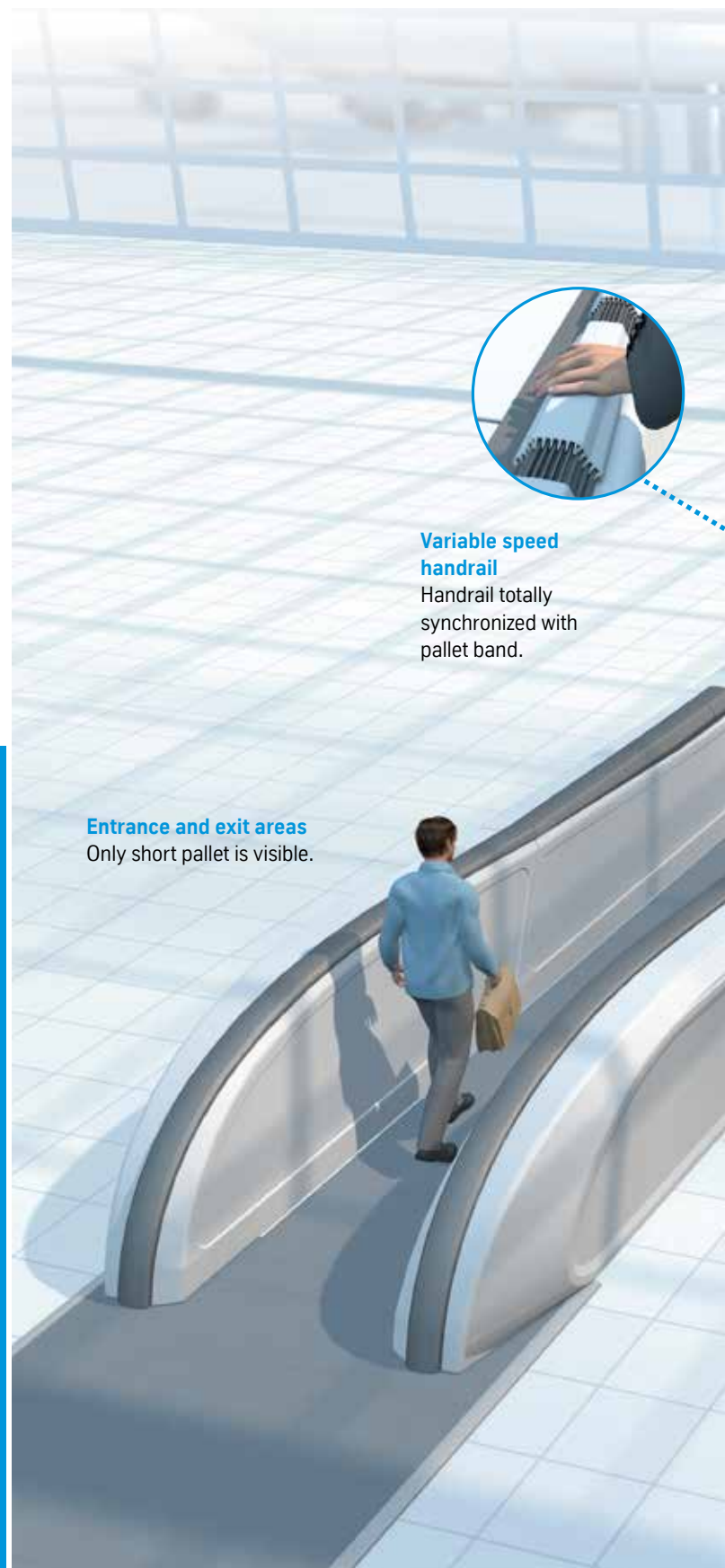
- Services lengths of up to 1,500 m
- Applicable to medium distances more efficiently

#### Unique technology

- Proven pallet/handrail systems
- Transrapid technology

#### Future demands

- A metro station at less than 500 m to any citizen
- Improved public transport quality by extending the distance between train stop

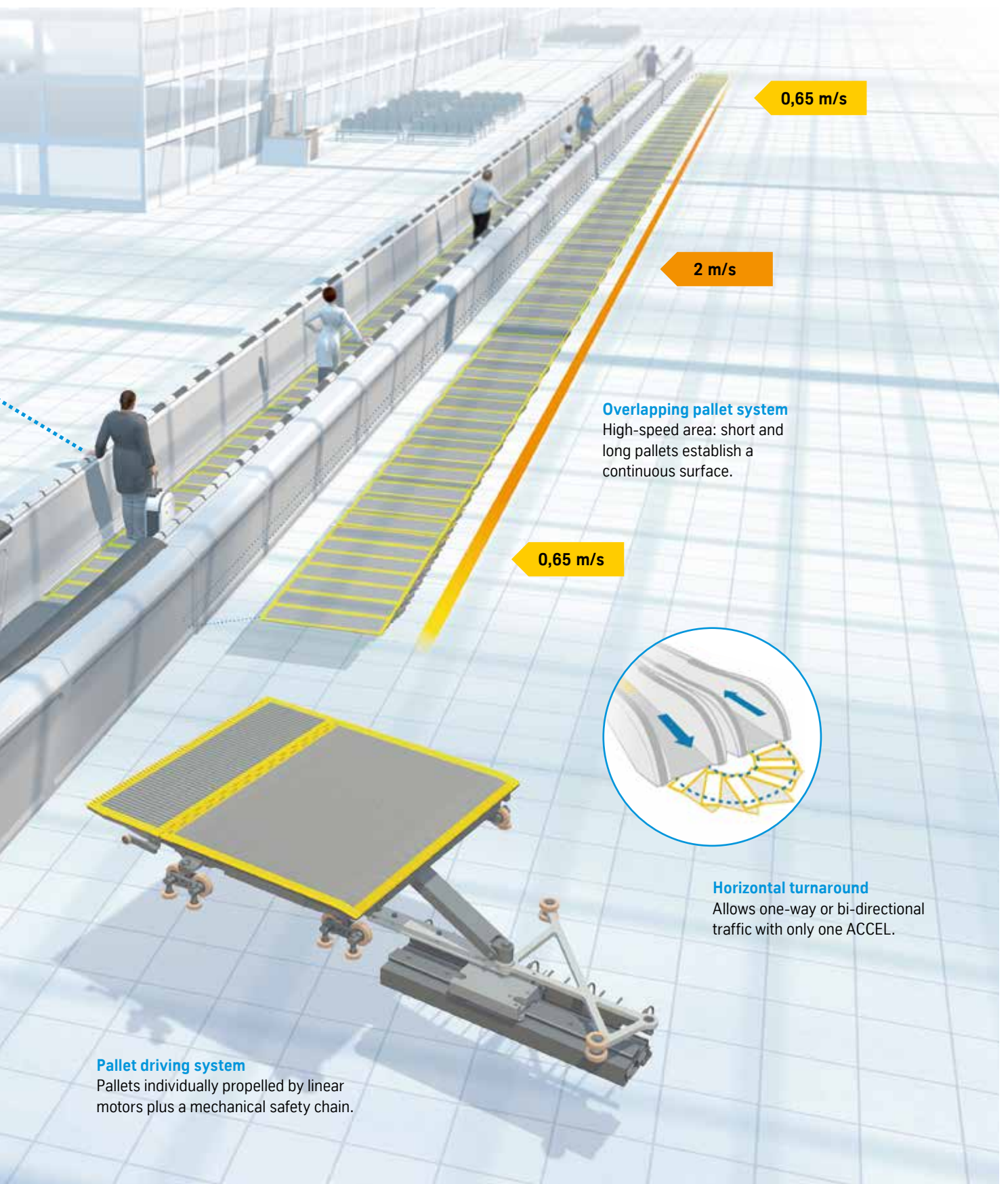


#### Variable speed handrail

Handrail totally synchronized with pallet band.

#### Entrance and exit areas

Only short pallet is visible.

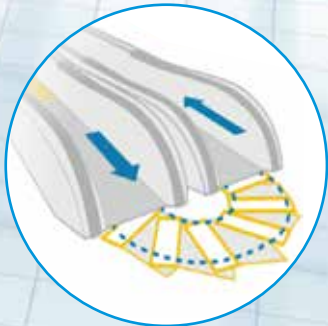


0,65 m/s

2 m/s

**Overlapping pallet system**  
High-speed area: short and long pallets establish a continuous surface.

0,65 m/s



**Horizontal turnaround**  
Allows one-way or bi-directional traffic with only one ACCEL.

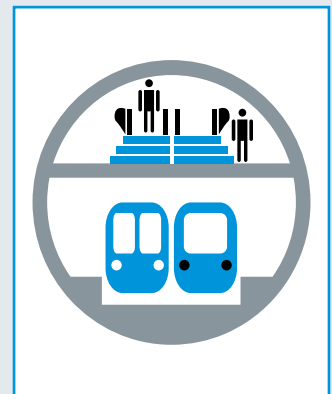
**Pallet driving system**  
Pallets individually propelled by linear motors plus a mechanical safety chain.





ACCEL offers a cost effective solution to increase network connectivity without the need for major civil works.

Fast Track concept



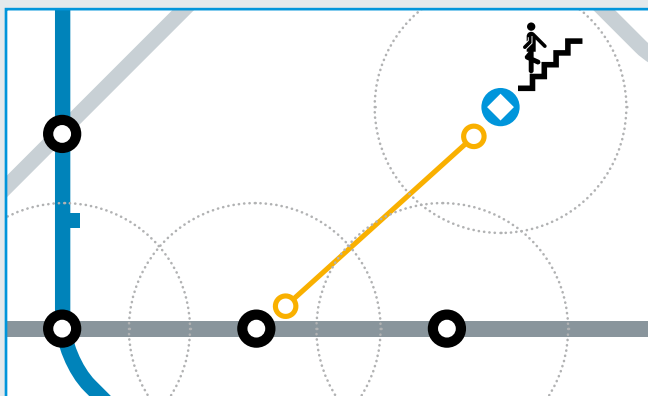


# A metro access on every corner of the city

A highly effective system with low maintenance costs. thyssenkrupp analysis shows that people at a distance of more than 500 metres from a metro station usually opt for other means of transport, despite the possibility of heavy traffic jams or significantly higher costs. Filling this gap in the transport landscape, ACCEL offers a cost effective solution to improve the reach of metro stations and increase network connectivity without the need for major infrastructural or civil works, in addition to attracting 30% additional passengers to a more environmentally friendly mode of transport.

Reducing trip times. Express metro lines can be built using ACCEL, reducing the number of stops for metro systems, and keeping or even increasing accessibility for passengers. The Fast Track concept will make public transport more attractive to users.

### New access to the metro



◇ Access   ● Metro station

### Linking metro lines



● Metro station



Flug nr.	Weg hin	Abflug zeitpunkt	Flughafen kategorie	Terminal	Flug nr.	Abflug zeitpunkt	Flughafen kategorie
BUDAPEST		21:19		1	A	050-481	A20
INNSBRUCK		21:19		1	A	051-481	B
BOLOGNA		21:19		1	A	050-481	A30
BELGRAD		21:19		1	A	050-481	B59
MADRID		21:19		1	A	050-481	A18
LONDON-HEATHROW		21:19		1	A	050-481	B51
BRUESSEL		21:19		1	A	050-481	B
LINZ		21:19		1	A	050-481	A
GENEVE		21:19		1	A	050-481	A
BERGEN		21:19		1	A	050-481	A
MANCHESTER		21:19		1	A	050-481	B
TURIN		21:19		1	A	050-481	B
LISSABON		21:19		1	A	050-481	B
DUESSELDORF		21:19		1	A	050-481	A
BEIRUT		21:19		1	A	050-481	A
STOCKHOLM		21:19		1	A	050-481	B
PARIS-CH. DE GAULLE		21:19		1	A	050-481	A
BASEL		21:19		1	A	050-481	A
STAVANGER		21:19		1	A	050-481	B
BREMEN		21:19		1	A	050-481	A
VERONA		21:19		1	A	050-481	A
PORTO		21:19		1	A	050-481	A
TOULOUSE		21:19		1	A	050-481	A
OSLO		21:19		1	A	050-481	B
KOPENHAGEN		21:19		1	A	050-481	B

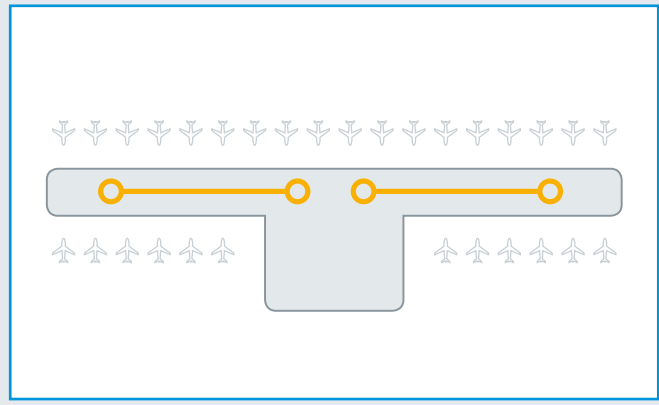
Flug nr.	Weg hin	Abflug zeitpunkt	Flughafen kategorie	Terminal	Flug nr.	Abflug zeitpunkt	Flughafen kategorie
006	HARBURG	21:19		1	A	050-481	A
8798	BILLUND	21:19		1	A	050-481	B
554	GOETEBORG	21:19		1	A	050-481	B
	BERLIN-TEGEL	21:19		1	A	050-481	B
048	WIEN	21:19		1	A	050-481	A
938	KAZAN-SABARA	21:19		1	A	050-481	A
700	NAILAND-MALPENSA	21:19		1	A	050-481	B
982	HELSINKI	21:19		1	A	050-481	A
1838	ROM-FIUMICINO	21:19		1	A	050-481	B
8820	NIZZA	21:19		1	A	050-481	A
4742	KATTOWITZ	21:19		1	A	050-481	B
126	VENEDIG	21:19		1	A	050-481	B
048	MUENCHEN	21:19		1	A	050-481	A
4758	GRAZ	21:19		1	A	050-481	A
657	STUETTGAERT	22:19		1	A	050-481	B
5302	SINGAPUR	22:19		1	B	493-490	B
523	LEIPZIG HALLE	22:19		1	A	050-481	A
286	PRAG	22:19		1	A	050-481	A
8071	BIRMINGHAM	22:19		1	A	050-481	B
408	ISTANBUL	22:19		1	A	050-481	B
3416	KIEN-BORISPOL	22:19		1	A	050-481	B
7856	KOELN HBF	22:19		1	A	050-481	TS
4234	ABU DHABI	22:19		2	E	941-940	E
813	JAKARTA-SINGAPUR	22:19		1	A	050-481	C
802	HANNOVER	22:19		1	A	050-481	A

Terminal 1 **ABC** Terminal 2 **DE**

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Connection within a terminal

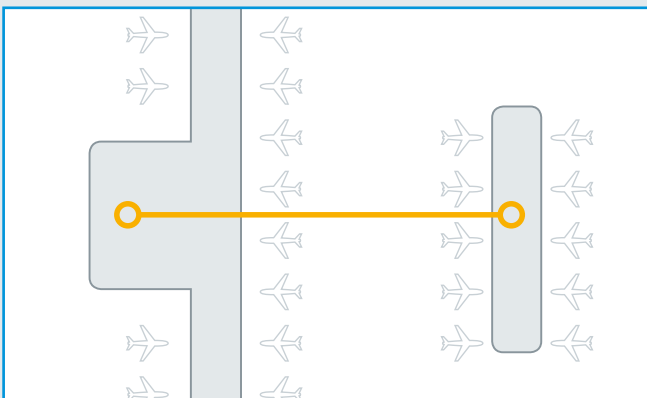


# A significant factor in smoother operations at airports

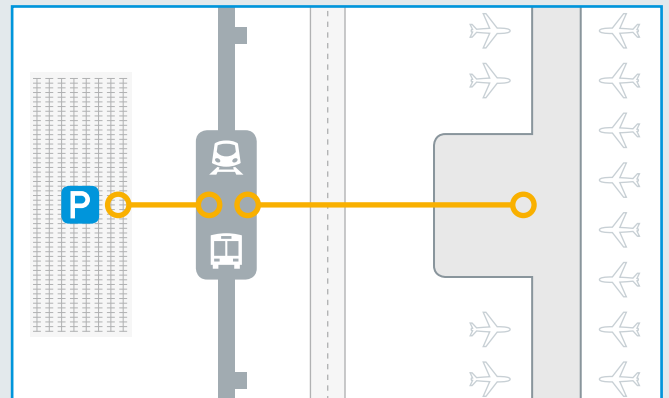
In airports, ACCEL is capable of improving airport traffic flow

Some of the most recent expansions at large airport hubs have significantly increased distances between gates, making transit difficult for some passengers, especially the elderly and those travelling with children. The increased distances also prove to be a major issue when there are last-minute gate changes or long lines to complete pre-boarding formalities, often resulting in some passengers missing their flights altogether.

Connection between terminals



Connection to transportation links



# ACCEL, the advantages of an innovative solution

## Easier planning

ACCEL avoids the need for setting up stations and waiting areas as those needed for APM or shuttle buses. Besides, it does not require any independent control room.

## Improving public transport

More efficient Metro systems with increased accessibility and faster trips for passengers.

## Reduced life cycle costs

Easy to maintain, with lower energy per passenger requirements; and with a lower initial investment.













# ACCEL, Technical data

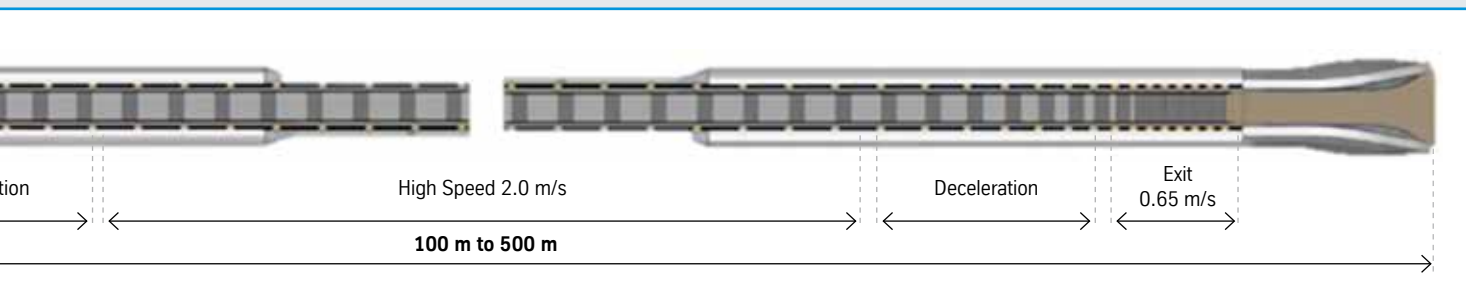
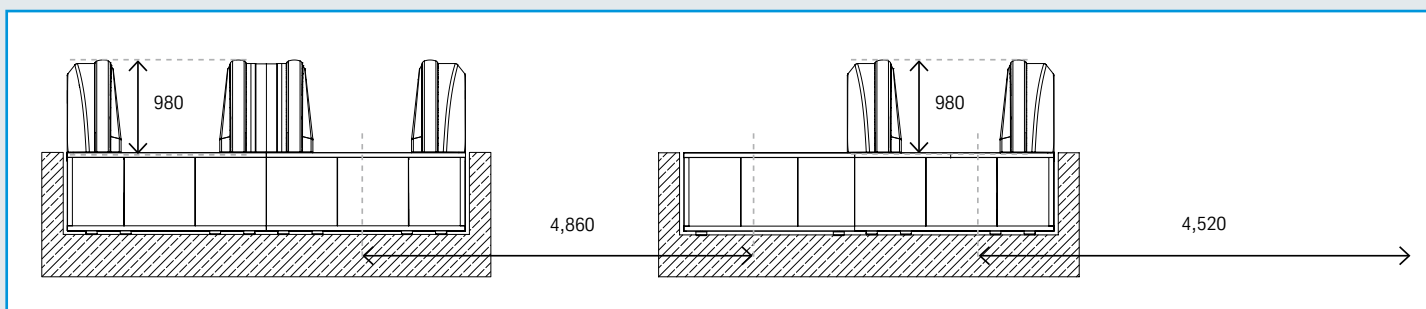
Consisting of a band of pallets, ACCEL is built using the overlapping pallet concept which allows each pallet to expand three times its original size. Each pallet is equipped with its own magnet propelled by linear motors installed in fixed positions.

In addition, the pallet band and the handrail are two separate systems that run precisely in sync. Sensors constantly focus on the position of the individual grips and pallets, ensuring that passengers always feel that these are moving at the same speed, which allows them to experience a smooth and safe ride.

Speed	Up to 2 m/s (7.2 km/h)
Capacity	7,300 passengers/hour per direction
Length	Modules from 100 to 500 m
Pallet width	1,200 mm
Total width if bidirectional	4,860 mm
Pit depth	980 mm
Climate class	Indoor

Horizontal turn around 2 ways

Horizontal turn around 1 way



## Elevator Technology

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