

# TUGELA: THE ESCALATOR THAT PERFORMS WHERE IT MATTERS





# ENHANCING URBAN MOBILITY: WITH ESCALATORS SINCE 1906

One World Trade Center's flying escalator, USA

January 2018 marked the 125th anniversary of the first-ever escalator. It was invented more or less by accident. Jesse Reno had been trying to create New York's first double-decker subway but ended up with a moving stairway traveling at a 25° angle for a mere seven feet (2.13 m). But in just two weeks, it carried some 75,000 passengers at the Old Iron Pier on Coney Island. A global success story was born.

## **In escalators since 1906**

We were soon into the escalator business, with our first model installed at a department store as long ago as 1906. 115 years of engineering excellence have gone into our tugela models.

## **As diverse as they come**

We build mobile escalators for boarding and disembarking aircraft, restaurant escalators with just one moving handrail for waiters with only one hand free, and suspended escalators that crisscross the open space of an atrium. You name it, we build it.

## **Remarkable locations**

Our underwater installation at Shanghai's Ocean Aquarium ensures visitors enjoy spectacular sights.

The One World Trade Center in New York has 12 of our escalators and 71 elevators. We also equipped the world's largest department store in Busan. Higher, bigger, better – escalators from TK Elevator.

## **Myth debunked**

“Stand on the right, walk on the left” actually slows down passenger flow. Studies show that escalator capacity increases by about 30% if nobody walks. At TK Elevator, we know the escalator business like the back of our hand and it's this expertise that makes our new tugela series so special.

# CONTENTS

04

Performance you can rely on

14

Prioritizing sustainability

06

Simplifies your project planning

16

Your service partner: always there

08

Keeps your passengers moving

18

Design tools – making your life easier

10

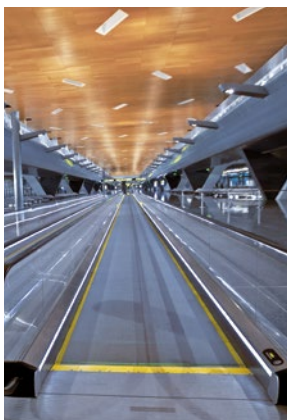
Certainty in making the right choice

19

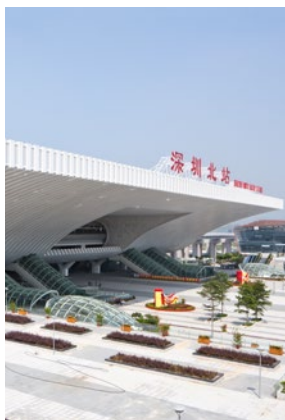
About us

12

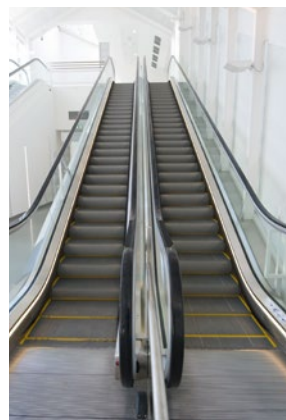
Play it safe in high-traffic areas



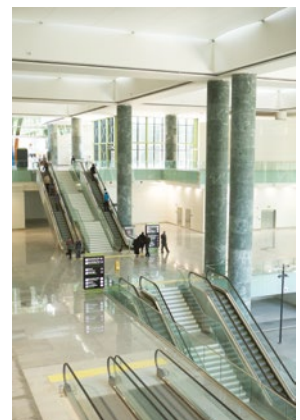
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Doha, Qatar



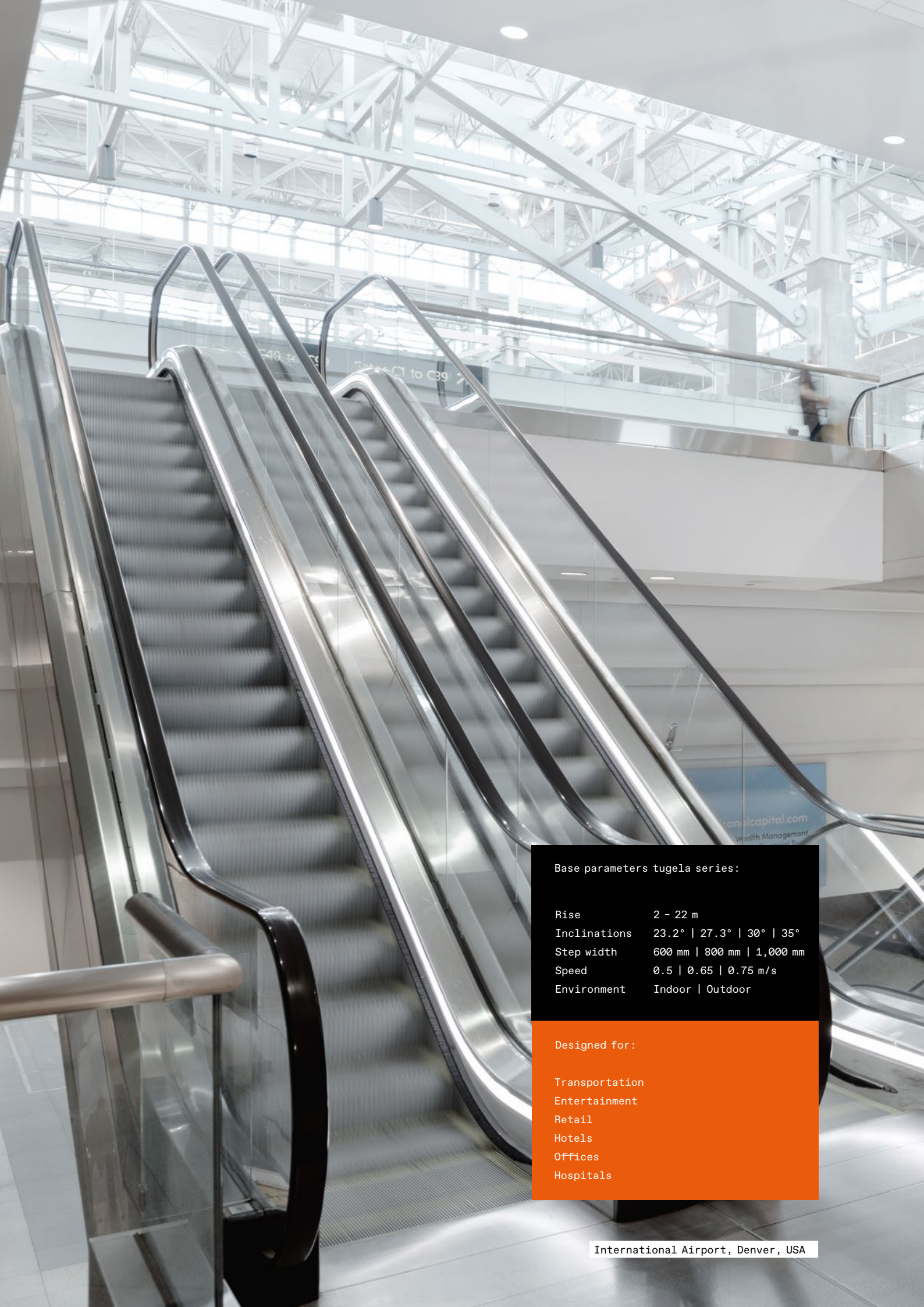
North Railway Station  
Shenzhen, China



Exhibition centre Frankfurt  
Frankfurt, Germany



Adnan Menderes, International Airport,  
Izmir, Turkey



Base parameters tugela series:

Rise	2 - 22 m
Inclinations	23.2°   27.3°   30°   35°
Step width	600 mm   800 mm   1,000 mm
Speed	0.5   0.65   0.75 m/s
Environment	Indoor   Outdoor

Designed for:

Transportation  
Entertainment  
Retail  
Hotels  
Offices  
Hospitals

International Airport, Denver, USA

# PERFORMANCE YOU CAN RELY ON

Our tugela escalator was designed with high passenger volumes in mind and has been based on a public traffic load pattern.

tugela moves people safely in high-traffic areas – all over the world and in all kinds of climates. With dependable technology and components, this escalator is an exceptionally reliable partner.



## Simplifies your project planning

From low- to heavy duty environments, tugela gives you all the flexibility you need in commercial applications. tugela provides core traffic functions for reliable performance, but also many optional traffic features, as well as a variety of commercial parameters and options to choose from.



## Keeps your passengers moving

We leave nothing to chance by paying careful attention to all details. Smart safety features and durable materials are an essential part of tugela's design. In addition, our cloud-based predictive maintenance solution MAX makes sure you can fully trust tugela in high-traffic areas.



## Certainty in making the right choice

tugela was designed to withstand wear and tear, even after years of high-peak use. This escalator comes with features that have been particularly engineered for infrastructure applications.



## Simplifies your project planning

To meet your specific needs in any environment, tugela is highly customizable. With a rise from 2 to 22 m, variable width and inclination, tugela easily fits into your building.

A variety of traffic features, as well as design options for all environments, make sure tugela sets new standards both functionally and aesthetically.



Denver International Airport, USA



Denver International Airport, USA

Core traffic features as standard

- Rise up to 22m
- Speed up to 0,75m/s
- Truss deflection up to 1/1500 on request
- Transition radius up to 2600/2000mm



Hong Kong Zhuhai Port, Macao Bridge, China



Perot Museum of Nature & Science, Dallas, USA

## Adjusting to architectural circumstances

The base parameters of tugela speak for themselves: variable height from 2 to 22 m, variable width and inclination, coupled with a compact design. tugela adapts to your building while taking up little space.

In addition, you are flexible as to whether you want to install tugela indoors or outdoors.

## Tailored to your traffic needs

tugela was designed to function reliably in high traffic areas. tugela offers core traffic features as standard.

- The step chain reduces pin pressure and increases break load – for maximum capacity.
- Main shaft and drive system are designed for increased load requirements.

### You have the flexibility to increase functionality with additional optional features:

- An extra brake on the main shaft for increased safety
- Metal balustrades or a
- Hot dipped galvanized truss.

### There are plenty of design variants to choose from:

- A truss width of 1,530 mm (5EK)
- A wide range of inclinations and truss reinforcements.

## Always the perfect look

With a wide range of design options, including different exterior cladding and handrail colors, you can visually enhance your installation.

- There are many balustrade options to choose from: robust stainless steel or colorized glass panels.
- Decorative lighting options for balustrade, truss, ambient cladding, soffit light stripes, spotlights and more.
- Eyecatching steps in black or silver and optional yellow demarcation lines are part of the standard design.
- Vandal-resistant features like balustrades in sandwich construction with stainless steel cover are the perfect fit for public transportation areas.



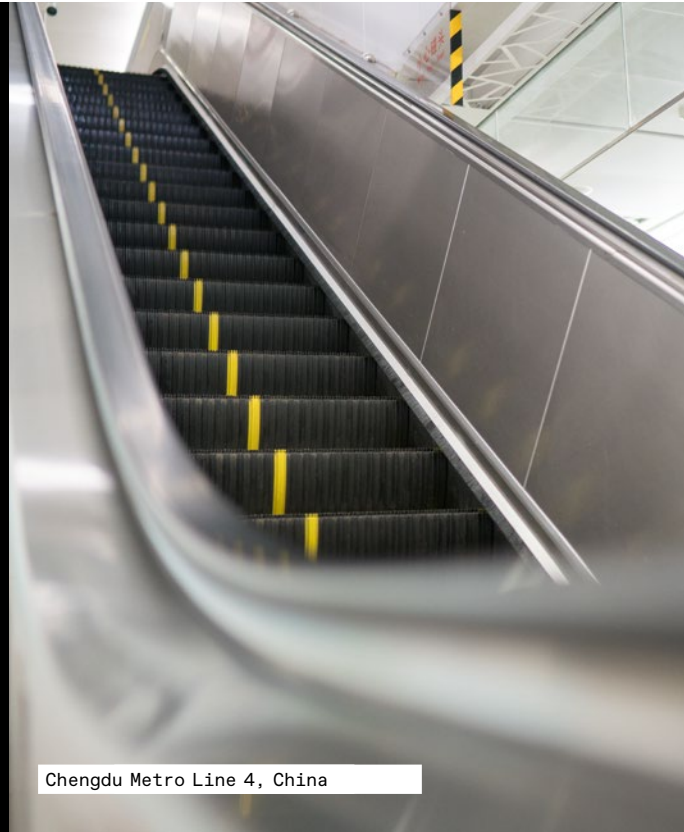
## Withstanding any climate

tugela holds steady in any climate, from high humidity to salty environments to ice-cold temperatures. Technical options like heated handrails and automated chain lubrication, along with product features such as a galvanized supporting structure, make tugela totally weatherproof – day in, day out.



## Keeps your passengers moving

tugela combines smart component design with advanced cloud-ready technology that enables predictive maintenance. A cutting-edge mix for smooth, reliable operation.

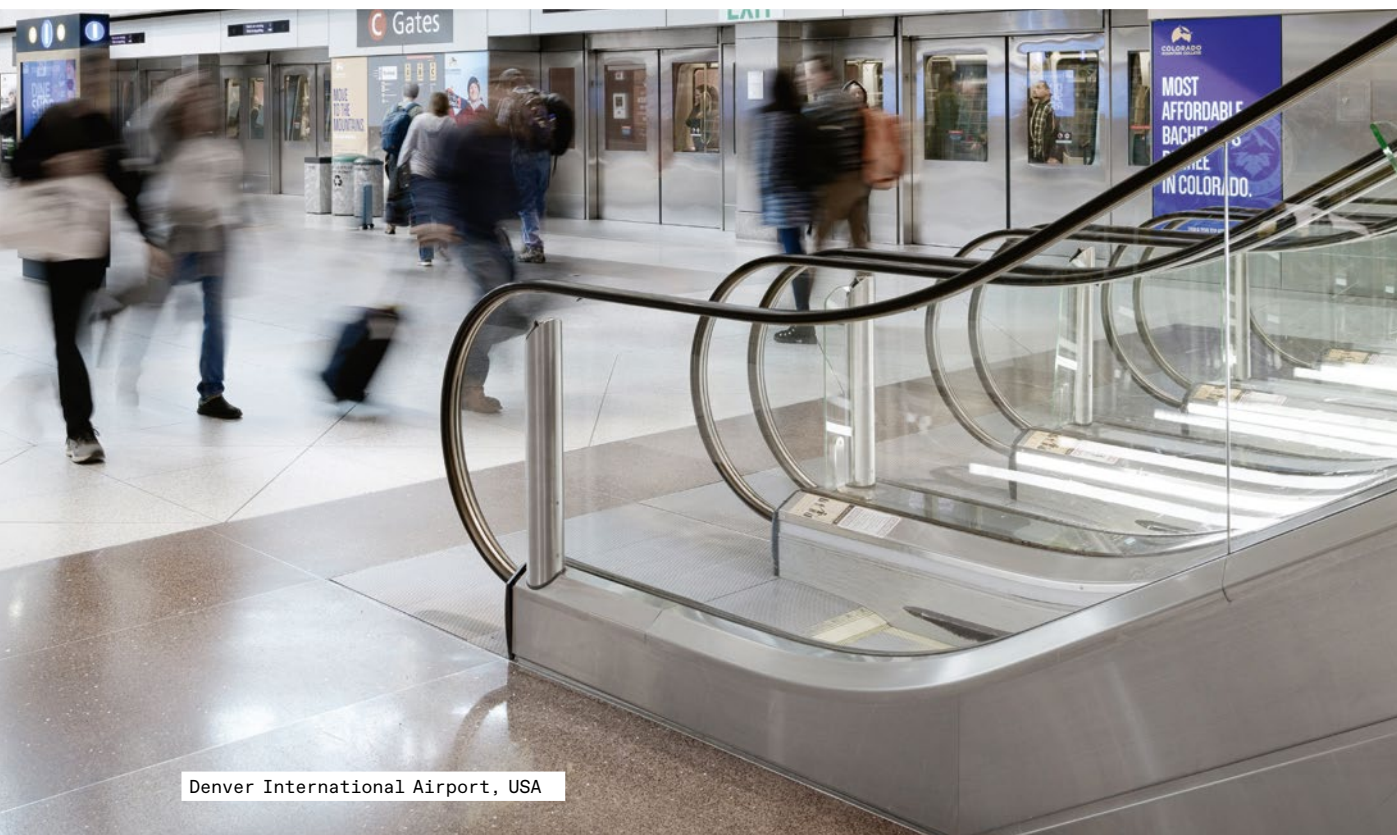


Chengdu Metro Line 4, China



Chengdu Metro Line 4, China





Denver International Airport, USA

## Certified step design

tugela's safe step design exceeds regulatory requirements for static loads and slide properties. That means reliability and durability in any environment.

## Step fastening: engineered to perform

Our unique fastening concept uses hollow axles that connect the steps and chain using solid bolts. This results in easier installation, operation and maintenance.

Oil caps at the end of the hollow axle prevent oil from leaking and polluting the step tread or riser, keeping steps clean and safe.

## Brake wear monitoring

The drive is automatically switched off as soon as brake pad wear is detected. This helps prevent malfunctions and indicates the need for maintenance.

## Control system: reliability at your fingertips

Our certified TK Elevator control system guarantees the performance you need thanks to decades of experience in the escalator sector.

It is highly flexible to meet any individual needs, facilitating seamless integration with your control systems.

On top of that, our control system is digitally enabled, which opens unlimited possibilities, from smart predictive maintenance to building management systems.



## Certainty in making the right choice

tugela's superior performance and longevity are the result of first-class design processes, advanced manufacturing systems and high-quality components, specially engineered for infrastructure applications.



Pearson Airport, Toronto, Canada



Hong Kong Zhuhai Port, Macao Bridge, China



Hong Kong Zhuhai Port, Macao Bridge, China



## **Drive unit: designed for 20 years' life**

tugela's drive units are designed for a 20-year working life and traffic load patterns. The spur gear drive reduces the maintenance effort and increases the overall drive performance.

## **Designed for high loads**

The main shaft is designed to handle increased load requirements. tugela is equipped with an optional forced parallel run device that prevents unequal elongation of the step chains due to passenger behavior – such as standing on one side only.

No drive chain elongation – as an alternative, the spur gear drive reduces the maintenance effort and increases the overall drive performance.

The newel wheel option guides the handrail around the newel head with an equal load distribution on moving parts and thus ensures increased working life.

The optional tensioning station equipped with a return shaft guides the step chain roller in the transition distributing loads and reducing wear.



Shenzhen North Railway Station, China

# PLAY IT SAFE IN HIGH-TRAFFIC AREAS

High traffic areas place special demands on safety. With tugela, you and your passengers are in good hands – thanks to our first-class components and more than 50 devices and options that go beyond the specifications.

## Accentuating comb and cover plates

A wide range of patterns and colors for combs and cover plates in combination with accentuating comb segments ensures increased safety and an eye-catching look.

## Safety lighting

Illumination of the step gap in blue or green in combination with comb plate lighting at the entrance and exit ensures passenger safety and emphasizes the attractive design of your escalator.

## Traffic lights for easy and safe passenger flow

A traffic light column is particularly visible even from a long distance and enables an optimal flow of people. tugela also offers traffic lights in the floor plate, inner decking or in the newel.



## Skirt monitoring

Stops the unit if jamming occurs. The system can distinguish between different types of jamming and adjust operation accordingly. In this way, it mitigates risk and also reduces downtime due to false alarms.



## Handrail sanitization

Touched by every passenger, handrails are high-risk surfaces for bacteria and virus transmission. A sanitization system ensures continuous disinfection of the handrail while the escalator is in motion.

Installed in the interior of the escalator, the module uses UV-C wavelengths to continuously eliminate microbes from the handrail surface.

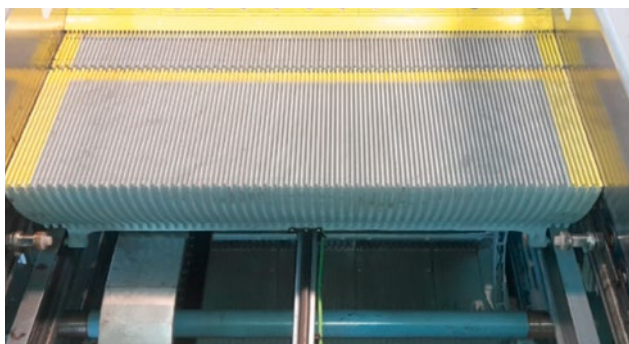
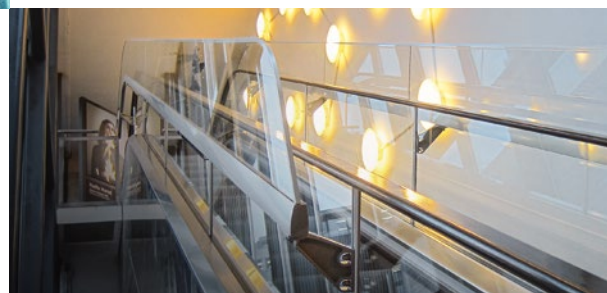


## Mats on cover plates

Escalators become even safer for users when anti-slipping mats are integrated on the cover plates. The risk of slipping or falling is significantly reduced.

## Safety curtain

An additional balustrade prevents people from climbing and leaning over the sides, the best way to protect from falls and related accidents on your premises.



## Continuous step monitoring

The installation of continuous broken step monitoring that runs along the full length of the escalator stops the escalator preventing passengers from severe injuries in case of step sagging or breakage.

A woman and a young girl are smiling and looking out over a cityscape from a balcony. The woman is on the left, and the girl is on the right. They are both looking towards the right side of the frame. The background shows a wide highway with many cars, a large green park area, and a city skyline in the distance under a clear blue sky. The text 'PRIORITIZING SUSTAINABILITY' is centered in the upper half of the image, flanked by two L-shaped brackets, one on the left and one on the right, both colored in a gradient of purple, orange, and red.

# PRIORITIZING SUSTAINABILITY

# Sustainability pays off – with energy-efficient escalator solutions

Many people still think that green solutions are more expensive. Our tugela escalator proves that sustainability pays off. These escalators put energy efficiency into operational practice to lower your building's carbon footprint, improve your environmental image and boost your bottom line.

## Energy-efficient lighting

State-of-the-art LED technology lasts longer than conventional lighting and is up to 80% more energy-efficient than halogen lighting.

## Energy-saving operations

Depending on your load cases, operational modes such as standby or sleep mode and the regenerative drive option can help make your escalator more energy-efficient.

## Lower environmental impact

By continuously improving our escalator solutions, we minimise their environmental impact in product life cycle assessments.



Continuous operation

Save up to 15%\*



Slow speed operation

Save up to 60%



Slow speed stop operation

Save up to 90%



Intermittent operation

Save up to 95%

ENERGY EFFICIENCY

A+++

ISO 25745-3

\* Only applicable with Star-Delta

# YOUR SERVICE PARTNER: ALWAYS THERE



Whatever your commercial operation, you need an escalator that is installed on schedule and, once running, ensures people can get where they want to go quickly and effortlessly. Our installation expertise will make sure your tugela escalator starts operating on time. Our technical and service support will keep it running smoothly from then on.



More details about MAX are available via this QR code.

## MAX – the game changer that keeps people moving

Introducing MAX: the elevator industry's first real-time, cloud-based predictive maintenance solution. Our smart, machine learning Internet of Things (IoT) solution dramatically increases escalator availability by reducing out-of-service situations through real-time diagnostics.



Data gathering



Precise diagnostics



Predictive intervention

MAX is only available in selected markets. Consult your TK Elevator sales representative for further information.



## Ensuring continuous people flow

### On-schedule installation

Our expertise in planning and project management, the vigorous process we employ to select suitable installation teams, and the regular training all our personnel go through are the reasons why we can deliver installation on time – anywhere in the world and in any kind of commercial building.

### Maximizing escalator uptime

Our service goal is quite simple: maximize your escalator uptime. When you need support, our highly trained service technicians will be quickly on hand with the right spare parts and know-how to ensure

your tugela escalator stays running smoothly or is back operating again in the shortest possible time.

### Tailor-made service packages

Choose from a variety of service and maintenance packages ranging from basic maintenance to EN 13015 through to comprehensive support. As our service technicians are all specialists in specific application areas, we work closely with you to understand your needs and come up with a customized service concept. That will not only enable you to meet your reliability and safety goals but also give you cost transparency and budget security.

## Interesting numbers

4,500,000,000

passengers per day

637,000

numbers of units worldwide

7,000

average number of passengers  
per unit per day

# Design tools: making your life easier

We supply you with a number of state-of-the-art tools so your architects, engineers and construction specialists can efficiently plan, design, construct and manage your building and infrastructure.



## Escalator Planner: Easier preliminary planning

This Escalator Planner provides architects and construction managers with the escalator-related data they need to design a building. By supplying all general product specifications, e.g. dimensions, net weight, potential energy efficiency and transport options, it enables exactly the right product to be found to match code requirements. Moreover, 2D or 3D CAD drawings can be uploaded into the preferred architecture software tool.



More details of the eSlider tool are available via this QR code.

## BIM: Building Information Modeling

BIM is an intelligent 3D model-based process that provides the insights and tools for a seamless information flow from design to execution.

At TK Elevator, we work with the world's leading BIM content platform, BIMobject®, where you can download our victoria BIM.



More details of the BIM tool are available via this QR code.

# YOUR INNOVATION PARTNER

elevators and escalators under maintenance

1,500,000+

countries of customers

100+

employees

50,000+

service available for customers

24/7

locations

1,000+

service technicians

24,000+



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