

Supplier for  
the rail industry



## Infrastructure

Expertise in elastomers and composites  
for rail infrastructure

”  
**INNOVATION**  
RECYCLED BORFLEX  
elastomers  
”





# The group

**BORFLEX®** is a **French** and **Swiss** group company that manufactures rubber, polyurethane, composite materials, and TPEs. It specialises in small, medium, and large series production **for all types of industry**.

**BORFLEX®** has a European presences thanks to its eleven **French** sites and its site in **Switzerland**.

Its design offices can support you in all of your innovation and custom product design projects.

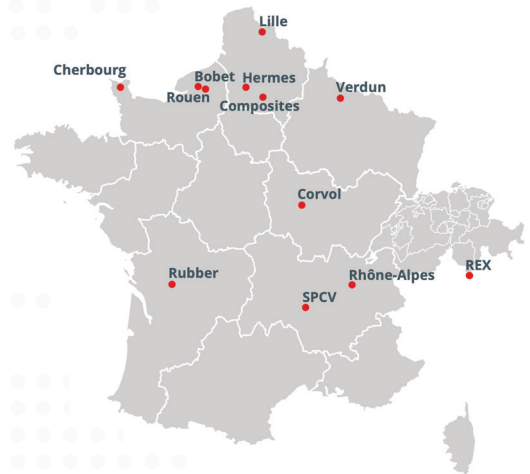
**BORFLEX®** is your specialist in the development, fine-tuning, design, prototyping, and manufacture of products in rubber, TPE, polyurethane, and composite materials, intended for use in industry, and in particular the rail transport industry (*door and window seals, bellows, safety edge profiles, pads, protectors, protective cushions, hoses, hand rails, railway crossings, etc.*). The **BORFLEX®** Group is also self-contained and formulates its own compounds, responding to the **requirements** of its pioneering clients.

From design to the overall control of the logistics chain, we **support** the largest rail builders and operators throughout the progression of their **projects**.



**Olivier Quintin**  
CEO of the BORFLEX Group

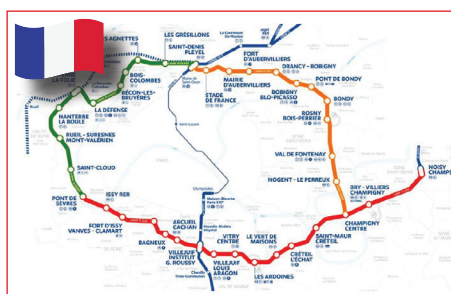
## Production monitoring in compliance with highly rigorous standards



## Some reference projects:



**Saint Gotthard Tunnel (Switzerland)**  
Rubber base plates and pads



**Grand Paris (France)**  
Hand rails, railway crossings, tunnel equipment



**Caracas (Venezuela)**  
Caracas urban network line 3rd rail



# Rail Industry - Infrastructure

**BORFLEX®** develops multiple solutions with a view to ensuring safety and delivering high-precision mechanical properties, in accordance with your needs. The group is ready to step in to assist with your construction, maintenance and repair interventions, and works to restore compliance with standards.



- ✓ Life line
- ✓ Base plate
- ✓ 3rd rail

At the cutting edge of technology for 75 years, the BORFLEX® Group has become a melting pot of experience and expertise. We carefully consider the challenges you are facing as we tackle each step of your projects.

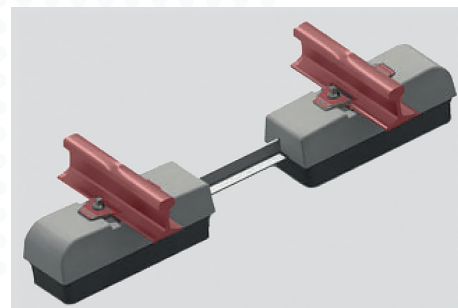
- ✓ **Safety** of users, onboard staff, and intervention staff:
  - Slip resistance
  - Euroclasses in accordance with NF EN 13501-1 for infrastructure
- ✓ **Durability** and strength of the parts:
  - Imperishable
  - Resistant to adverse weather conditions (UV, hot and cold - even extreme cases)
  - Exceptional abrasion resistance
- ✓ **Comfort** of users, onboard staff, and intervention staff:
  - Ease of assembly and disassembly
  - Acoustic comfort
  - Customisable visuals and aesthetics
  - Market flexibility
  - Thermal inertia



# Products developed for infrastructure

## ✓ Base plate for bi-block sleeper rails

- **Durability:** remarkable static rigidity and dynamics
- **Ease of use:**
  - Exceptional vibration damping
  - Noise reduction
- **Ease of installation:**
  - LVT-type compatible connection
  - Ease of installation



### Areas of application:

- Rubber base plates and microcellular pads for underground lines and tramways
- With or without connection terminals

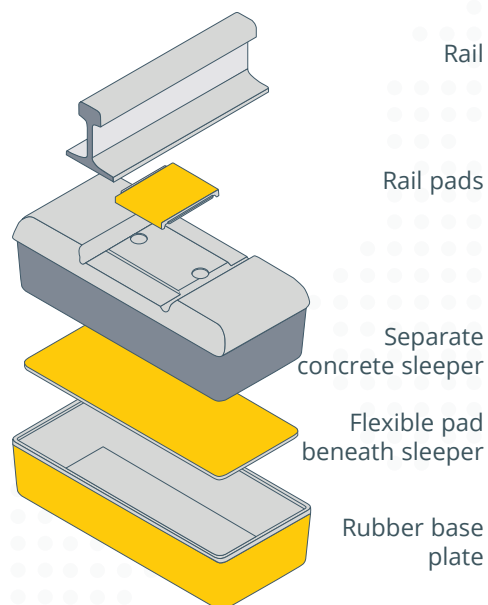
### International reference projects:

Lines crossing the alps (Zimmerberg, Lötschberg and Gothard)

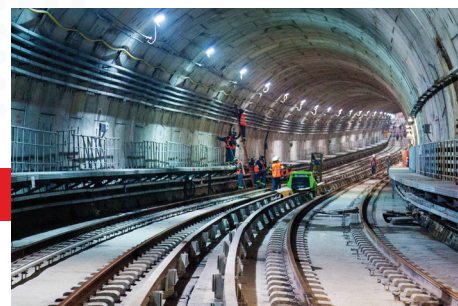
Channel Tunnel, and tunnels in Hong Kong, Taipei, Brazil and the United States

Also used in the construction of several Swiss tunnels, such as Bötztberg, Grauholz, and Mattestetten-Rothrist, and in various stations: Zurich, Kloten, and Lausanne.

Other metro lines abroad: Brazil, Egypt, Greece, France, and Italy



ADAPTABLE SYSTEMS





# Acoustic protection of the rails

## ✓ Pads and sole plates



## ✓ Benefits

- **Durability:**  
rubber and plastic compounds, developed by BORFLEX® in our laboratory, for their mechanical properties and exceptional durability
- **Ease of installation:**  
fast and simple assembly
- **Acoustic comfort:**  
material compounds designed to reduce the shocks from the vibrations of the passing trains
- **Adaptable dimensions**

### Areas of application:

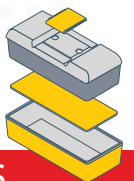
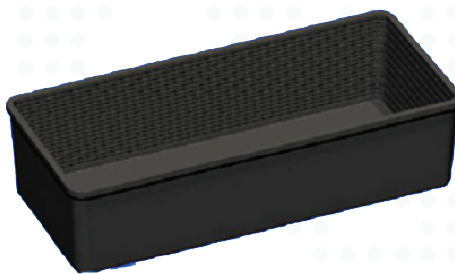
- Acoustic protection of the rails

BORFLEX® also offers parts with the option of compact or expanded materials

## ✓ Flexible pad beneath sleeper



## ✓ Flexible pad beneath sleeper



ADAPTABLE DIMENSIONS

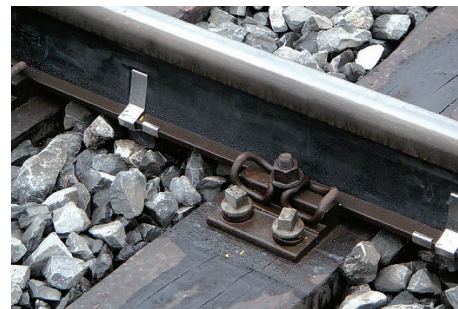
# Products developed for infrastructure

## ✓ Anti-vibration and insulating

- **Ease of installation:** fast and simple assembly
- **Acoustic comfort:** reduction by 4 to 5 decibels

### Areas of application:

- Special acoustic protection applied to the rails



## ✓ Pads

- **Safety:** avoids the propagation of parasitic currents\*
- **Ease of installation:** fast and simple assembly

### Areas of application:

- Acoustic protection of the rails

\*BORFLEX offers a special version to avoid the propagation of parasitic currents



## ✓ VELOSECUR

BORFLEX GROUP

- **Safety:** of pedestrian users and users on wheels (cyclists, wheelchair users, scooters, etc.)
- **Durability:** the Velosecur® profile is designed to quickly return to its original form after the passing of the train, and offers a good lifespan.
- **Ease of installation:** fast and simple assembly

### Areas of application:

- Railway crossing that is safe for users. This system enables the filling of the rails, thus enabling bikes to travel without any danger when crossing a railway line.



VIDEO INSTALLATION





# Floor covering system



## HIGH DURABILITY

IMPUTRESCIBLE ★★★★★  
RESISTANCE ★★★★★



- ✓Abrasion
- ✓Weatherproof
- ✓Slipping
- ✓Extreme temperatures
- ✓UV

## TIME SAVINGS

ON ASSEMBLY ★★★★★

- ✓Ready-to-use
- ✓Highly adaptable
- ✓Handling - Transport - Assembly
- ✓Simple - Light weight

AFTER INSTALLATION ★★★★★

- No maintenance
- No repair necessary



## SAFETY

VANDAL-PROOF ★★★★★  
DIELECTRIC ★★★★★  
THERMAL INERTIA ★★★★★  
NON-SLIPPING ★★★★★



- Grooving: reduces aquaplaning
- Rubber material: natural grip

## COMFORT

ACOUSTIC ★★★★★

- Noise absorption
- Flexible walking

LOOK ★★★★★

- Aesthetics
- Modern
- Qualitative



PLATFORM

20% RECYCLED

FLOOR TILE

40% RECYCLED

## ADAPTABILITY

CUSTOMIZABLE ★★★★★



- Sizes
- Colours
- Design

Building sustainably



RUBBY\* by Borflex® system  
Recycled content on request





# Products developed for infrastructure

## ✓ **SWISSCROSS** Level crossing in **RUBBER/CONCRETE** - RUBE®

Combines the advantages of level crossings in concrete and in rubber

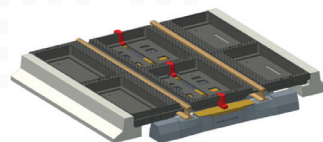
- **Safety:**
  - Entire weight distributed across three sleepers
  - Improved stability
  - Approved in Switzerland, France, and Hungary
- **Durability:**
  - Longer lifespan
  - High load-bearing capacity and reduction of deformation during the passage of heavy vehicles
  - Improved behaviour in case of frost and rain
- **Ease of installation:**
  - Fast and logical assembly and disassembly (tamping),
- **Ease of use:**
  - Better damping of vibrations and noise

### Areas of application:

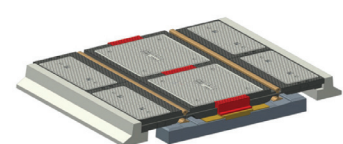
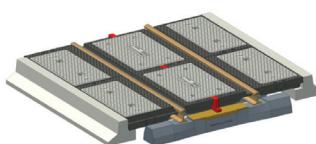
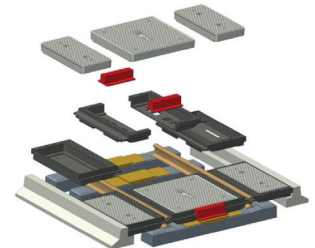
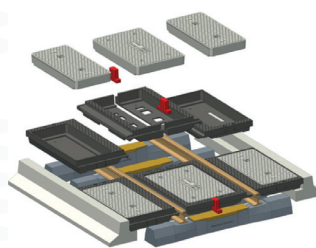
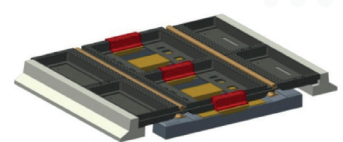
- Level crossing



**SWISSCROSS**  
RUBE® 1000



**SWISSCROSS**  
RUBE® 1435





# Products developed for infrastructure

## ✓ **SWISSCROSS** Composite service and pedestrian crossing

### • **Safety:**

- Flame-retardant resin material, compliant with the majority of international standards concerning the smoke emission in case of a fire in the tunnel
- Flame-retardant and excellent fire resistance
- Good slip resistance thanks to the rough surface
- Approved in Switzerland

### • **Durability:**

- Resistance to UV
- Excellent resistance to adverse weather and corrosion

### • **Ease of installation:**

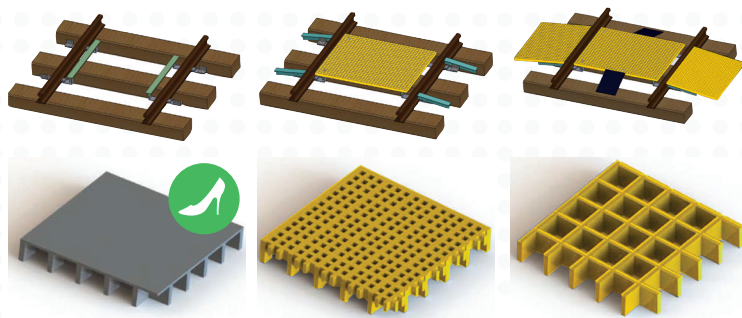
- Fast and simple assembly

### • **Ease of use:**

- Grill or closed plate cover

### **Areas of application:**

- Crossings:
  - for service access in railway stations
  - in the metro escape routes
  - at tunnel exits
- Load-bearing capacity:
  - for a grill thickness of 38mm = 400 kg/m<sup>2</sup>
  - for a grill thickness of 50 mm = 800 kg/m<sup>2</sup>



VIDEO INSTALLATION

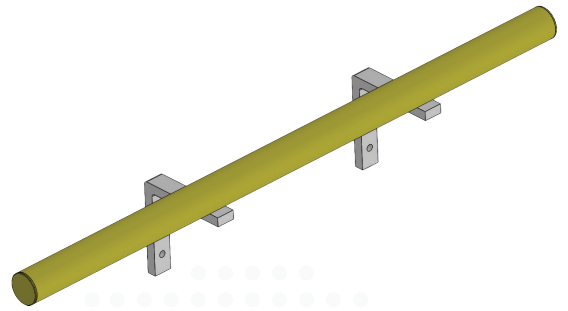
# Products developed for infrastructure

## ✓ Hand rail

- **Safety:**
  - 100% composite material
  - Non-toxic fumes (in case of fire)
  - Non-opaque fumes (in case of fire)
  - Non-conductive
- **Durability:**
  - Material ultra resistance to corrosion
- **Ease of installation:**
  - Fast and simple assembly
  - Adapts to your needs
- **Visual comfort:**
  - Ergonomic product range

### Areas of application:

- Range designed specifically to direct passengers
- Already present in several rail installations in Europe, hand rails from the BORFLEX® Group set the standard

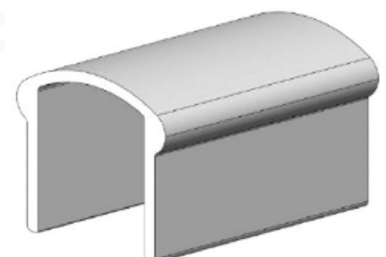


## ✓ Composite railings, Estacade and 3rd rail cover

- **Safety:**
  - 100% composite material
  - Non-toxic fumes (in case of fire)
  - Non-opaque fumes (in case of fire)
  - Non-conductive
- **Ease of installations:**
  - Fast and simple assembly and disassembly

### Areas of application:

- Maintenance workshop
- Standardised railing
- Protection of railway power supplies





# Our eco-friendly innovations

## ✓ Recycled BORFLEX® rubber

BORFLEX® is able to substitute 20 to 40% natural rubber in its rubber compounds. This substitution ensures 100% recyclability of the products manufactured.

## ✓ Rubber reliability

### ✓ Substitution without compromise:

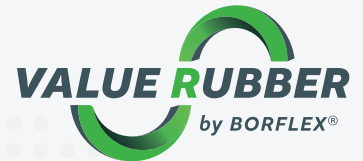
Experts in formulations and compounds for over 65 years, BORFLEX® has mastered rubber substitution while maintaining optimum performance.

### Guaranteed performance:

- ✓ Our materials meet the most rigorous requirements, guaranteeing reliable and durable products.

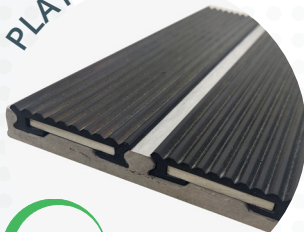
### Sustainability:

- ✓ Thanks to this virtuous, eco-responsible cycle, BORFLEX® is at the forefront of sustainable innovation.



## ✓ Examples of BORFLEX® products using recycled rubber

PLATFORM



20%

### RUBBER

- | NON-SLIPPERY
- | IMPUTRESCIBLE
- | RESISTANCE +++
  - ✓ Abrasion
  - ✓ Weatherproof
  - ✓ UV

FLOOR TILE



40%

### COMPOUNDS

- | WAVE-PERMEABLE
- | DIELECTRIC
- | NO CORROSION
- | RESISTANCE
  - ✓ Chemical
  - ✓ UV

# Our commitments



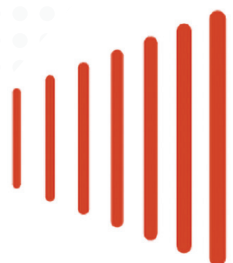
## ✓ **Innovation in recycled rubber**

The BORFLEX® Group stands out for its capacity for INNOVATION. Environmental issues affect all industrial activities. That's why the company's R&D department has taken a major step forward by proposing solutions for better resource management and waste reduction. This includes the recycling of BORFLEX® elastomers and the integration of recycled materials, known as VALUE-RUBBER, to optimise environmental impact without compromising product quality.

## ✓ **Services**

- Capacity to test and certify compounds and parts
- Cutting
- Design
- Formulation
- Ready-to-use system
- Restocking

## ✓ **Standards**



# Flamestop®

## WORLDWIDE COMPLIANCE

