

In Belgium, Alstom is a major player in sustainable mobility with **2 global centres of excellence in Charleroi** and **a major production site in Bruges**. The first centre of excellence is dedicated to electrical energy conversion and storage (traction and energy efficiency) and the second to signalling for mainlines. The development of these activities is based on significant **R&D** investments to ensure safer and more efficient rail transport while offering environmentally friendly solutions. Alstom is holding several maintenance contracts on its Charleroi and Bruges sites and also in a **1 depot** for renovation activities in Fleurus. The **Alstom Belgium headquartered** is in Brussels.



## KEY FIGURES BELGIUM

<b>1850</b>	headcounts
<b>4</b>	Sites, office and depot
<b>100</b>	Projects around the world
<b>20</b>	R&D programmes



### : ACTIVITY 1 - SIGNALLING

- The centre of excellence develops national signalling solutions and also based on the European standard ERTMS (European Railway Traffic Management System) both for equipment on the tracks and onboard trains. These systems manage train safety and increase train frequency.
- Alstom is at the forefront of the development of autonomous transport systems (ATO), that maximise network capacity, energy savings and punctuality.



### : ACTIVITY 2 – COMPONENTS & ENERGY SOLUTIONS

- The center of excellence develops and industrialises new-generation traction systems to meet the current and future needs of operators and passengers. Traction systems equip a significant part of Alstom's rolling stock, notably regional trains, metros and tramways.
- R&D programs are dedicated to reduce the energy consumption of solutions and developing energy recovery systems.



### : ACTIVITY 3 - MANUFACTURING

- Painting, final assembly and testing of trains as the M7 regional trains for SNCB



### : ACTIVITY 4 - SERVICES

- A panel of services is offered to guarantee the availability of systems: crash repair, parts and repairs, modernisation, development engineering, technical support, integrated logistics support, tools and test benches using new technologies.

## MAJOR REFERENCES

**Innovation for more efficient and sustainable mobility**

### SIGNALLING

- Development and implementation of the European signalling system ERTMS for the fleets of SNCB (Belgium), CFL (Luxembourg), OBB (Austria), SBB (Switzerland), and also for Siemens trains.
- A world first with the commissioning of the European signalling standard ERTMS Level 3 on the suspended metro in Wuppertal (Germany) with an information transmission between train and track via satellite.
- Development of programmers and supply of track equipment for the national signalling system (TBL1) for the Belgian network managed by Infrabel.

### COMPONENTS & ENERGY SOLUTIONS

- Development of the OptONIX traction system dedicated for the Chinese subway market. This high-performance system equips cars in the subways of Beijing, Hong Kong, Qingdao, Nanjing, Shanghai ... but also in Panama and Buenos Aires.

### SERVICES

- Contracts for the maintenance, repair and modernization of signalling on board equipment (ERTMS) for SNCB, SBB and OBB.

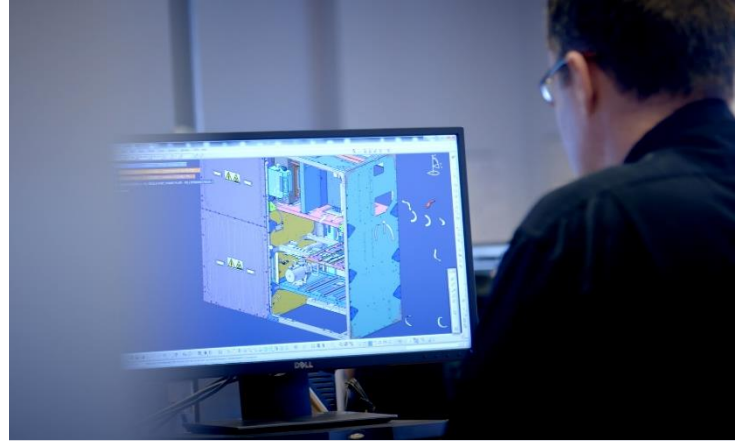


### R&D

- HESOP™ on the Dubai metro is commercial service. HESOP™ recovers 99% of braking energy and reinjects it into the network for greater energy efficiency.
- Automatic Train Operation (ATO) tests were successfully carried out in Belgium and the Netherlands with GOA2 level (driver supervision).

## PROJECTS ONGOING

**More than 100 projects on the 5 continents**



- Production of 1,500 signal cabins integrating the electronic interlocking system to support the modernization of the Belgian network.
- Development, homologation and deployment of ETCS solutions & national safety systems for cross-border trains
- Development and deployment of ETCS level 2 Baseline3 for the fleets of national operators in Denmark & Norway
- Design and production of new traction systems for pilot cars of the M7 trains (SNCB) and for 99 ICNG trains (NS)
- Production of 649 M7 trains for SNCB and 90 trams NG for STIB
- Renovation of 45 tramways for TEC Charleroi
- Maintenance of Traxx locomotives
- Traction system with auxiliary converter based on silicon carbide technology and low-voltage cabinet for several metros: Riyadh, Dubai, Hanoi ...

### MORE INFORMATION:

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