

Design – construction – maintenance

## Strong in signalling systems

As a full-service provider of rail systems, Strukton Rail has considerable in-house experience in designing, constructing and maintaining signalling equipment, such as signals, point mechanisms, train detection systems, crossings and interlock systems (e.g. EBS, VPI, EBI lock and Smartlock).



### Design

Strukton Rail manages the design process of both traditional relay and electronic interlock systems, which link signals, points and train detection. The design process consists of producing a preliminary design, supervising the final design and engineering consultancy, to producing the working drawings for implementation. We also specify the operational tests required to guarantee the maximum feasible safety and reliability.

### Construction

After the design phase comes installation, commissioning and functional testing - which are in reliable hands with us. We produce our own implementation plans, often including ingenious working methods and an optimum logistics plan. This approach enables us to tackle complex projects that are delivered fully functioning and on time, while keeping the number of service interruptions to a minimum.

### Maintenance

The maintenance of rail infrastructure is performed on the basis of the client's quality levels. The Maintenance Engineering department devises the relevant maintenance concepts with reference to quality data and the maintenance needs of the various infrastructure components. Due account is taken of the reliability, availability, maintainability and safety (RAMS) aspects of each object. Maintenance management is the process of continuously improving the effectiveness of maintenance. We strive from the viewpoint of cost saving for state-dependent maintenance, so that maintenance does not have to be performed at prescribed regular times, but only when necessary. It goes without saying that we also have a breakdown organization that is available 24 hours a day, 7 days a week, and has a response time of only 30 minutes, thanks to a regional structure. Our call centre instructs all our maintenance engineers.





We use advanced tools to provide us with the clearest possible insight into the current state of the signalling system. Some examples follow.

- Object management databases. These databases record the maintenance history of each object.
- Managing on breakdowns. This breakdown database records all defects, in order to reveal the most common breakdowns and any weak components. These data enable us to make further improvements.
- IRISys. This database contains data from the survey trains. The information is presented graphically per region and provides concrete information on the state of the track and the signalling system.
- POSS. This system remotely monitors vital components over internet and is capable of achieving a 60% reduction in breakdowns (see POSS brochure).



### Specialist in ERTMS

Strukton Rail has installed the European safety system ERTMS on the Betuweroute and the Amsterdam – Utrecht route. A new organization has been set up for maintenance, with a first and second line breakdown service. The first-line service carries out the work on site, supported

remotely by a second-line team of highly qualified specialists. This is a necessary structure, in particular because of the rapid introduction of new technology, in order to ensure the availability of highly specialized knowledge. This working method introduced by Strukton Rail is unique within the Dutch railway sector.



### References

- Maintenance of 50% of the Dutch railway network.
- Maintenance of the Stockholm metro signalling system.
- Maintenance of the signalling system on 4 contract areas of the Swedish railways.
- Introduction of POSS in various countries, including Germany, Italy, Sweden, Great Britain, and Australia.
- The construction of axle-counters for the West Coast Main Line (WCML) in England.
- Various major projects in the Netherlands, including Hemboog, the modernization of lines in Friesland and Eindhoven junction, EMC measures on the Betuweroute and the new generation ATB on-board train safety system.
- Extension of Amstelveen Line GVB.