Optimizing Rail Systems for every application

Operators all over the world want the same thing.
- Optimal use of transport infrastructure
- High safety level
- Maximum reliability and availability of all technical systems
- Maintainability

Objective: safe, stable, energy-efficient and cost-optimized operations
Jointly developing and implementing an efficient and sustainable solution with the client

We strive to exceed the expectations of our clients

- Availability and operational safety
- Cost-effective construction and operation
- Environmental compatibility / electromagnetic compatibility and electrical safety

Our interdisciplinary experts have a 360° view

- Consideration of economic and technical alternatives
- Integrating the solution into existing technical systems
- Implementation of complex system changes

Elements

- Catenary systems for electric traction
- Power supply systems
- Control, Command and Signaling (CCS)
- IT and telecommunications
DB Engineering & Consulting can provide all services in all disciplines with its own specialists as well as experts from the DB Group.

DB Engineering & Consulting processes individual elements and complex systems of every size.

DB Engineering & Consulting plans and implements projects for transport operators of local, regional, long-distance, and freight transport services.

Wide range of services:
From the concept to the complete system – all from a single source
Wide range of services: project management/control

- Project management/organization
- Risk/schedule/cost management
- Contract/claim management
- Test & Commissioning
- Reporting and As-Built documentation
Wide range of services: conceptual design and planning

Project design
- Strategy and Objectives definition
- Feasibility study
- Economic analysis
- Financing plan
- Project organization

Additional services
- Studies, tests, expert reports and approvals
- Service/operator responsibility

Engineering
From the idea to the implementation in the disciplines:
- Track system (permanent way) / road
- Rail systems engineering
- Structural engineering
- Architecture and building construction for technical and functional buildings, including building services
- Environment, geotechnics and surveying
Wide range of services: realization management

- Construction site management
- Construction operations planning
- Local construction site supervision
- Geotechnical and ecological construction supervision
- Test and commissioning
- Site support and documentation
Wide range of services: environment, geotechnics and geodesy

Environment
- Contaminated site studies (subsoil/groundwater)
- Waste-related declarations (subsoil/building fabric)
- Recycling and disposal concepts
- Environmental planning services (accompanying landscape conservation plan …)

Geotechnics
- Earthworks, ground engineering
- Building fabric / concrete technology
- Hydrology
- Laboratory/field testing

Geodesy
- Foundation surveying
- Design surveying
- Engineering surveying
- Routing
- Documentation
- Geodesic special applications
Electric rail systems: systems with high availability for different power and feeder systems (I)

Overhead Catenary Line System
- High speed lines
- Conventional lines for passenger and freight trains
- Metro and light rail systems (DC lines)
- Workshops and depots

Conductor rail (3rd rail)

Power transmission and distribution
- AC / DC substations
- Switching and coupling stations at trackside
- Cabling in high and medium voltage
- High and medium voltage transformers
- Low voltage power supply systems for:
  - Control, command and signaling
  - Telecommunication
  - Point heating and train pre-heating
  - Building facilities
  - Lighting systems for station, access routes, track area safety / emergency lighting
- Electric shock protection, earthing, lightning

Berlin Central Station, Germany © Christian Bedeschinski
Electric rail systems: systems with high availability for different power and feeder systems (II)

- Network and Control Applications
  - Network control center
  - SCADA - Supervisory Control and Data Acquisition for remote control and monitoring of power supply equipment on the rail network

- Electromagnetic compatibility (EMC) / electrical safety
  - Site analysis and EMC concept
  - Measurements, supervision of construction and operations
  - Attestation of workmanship that complies with standards and legislation
  - Damage inspection and assessment
Control, Command and Signaling: reliability and safety for operations at all speeds (I)

Automatic train control systems
- European Rail Traffic Management System (ERTMS)
- European Train Control System (ETCS)
- Automatic train control (intermittent / continuous)

Wayside train monitoring system
- Hot box detector
- Locked brake detection system
- Alarm notification systems

Line safety equipment and electronic interlocking technology*
- Electronic interlockings
- Relay interlockings, electromechanical and mechanical interlockings
- Local operated electric point (LOP)
- Marshalling/switching control towers
- Measuring devices and test equipment
- Functional buildings

* for operation of main and secondary line, metro and light rail, passenger and freight stations, workshops and depots

Novska–Oktušani line, Croatia; © Drago Lipičanin
Control and command technology: reliability and safety for operations at all speeds (II)

Traffic management technology
- Control Center concepts for integrated traffic management and remote control and monitoring of decentralized interlocking systems
- Automatic train number and train routing (ATN/ATR)
- Remote control system
- Computer-controlled train monitoring
- Data transfer system

Level crossing systems
- Automatic train controlled, interlocking controlled and manually operated installations
- Level crossing installations with automatic clearance penetration detection system
- Combined road traffic / railroad crossing protection systems

Signaling systems in road traffic
- Central and group control system
- Signaling devices and road signs
- Traffic detectors, traffic light control

Metro signaling systems
- Communications Based Train Control (CBTC)
- Driverless systems
IT/telecommunications: Integrated Systems in the client focus

Software solutions
- Human Resources
- Train-path management
- Timetable creation
- Traction energy
- Travel time reserves
- Maintenance

Infrastructure
- Passenger information systems
- Triple-S Centers (service, safety, cleanliness)
- Radio systems (GSM-R, Tetra)
- Alarm notification systems (SCADA, MAS 90)
- Safety and emergency call technology
  - Video systems for vehicle readiness control
  - Fire and intruder detection system
  - Tunnel emergency systems
- IT/TC office environment, data networks

Passenger transport sales systems
- Sales and accounting system
- Interlinking of sales channels