## Product group classification

**InnoTrans 2021**

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### Railway Technology

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### Tunnel Construction

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### Railway Technology

1. **Railbound vehicles for public and freight transport**
   1.1 **Public transport rail cars**
   1.1.1 Local and regional public transport rail cars
   1.1.2 Long distance public transport rail cars
   1.1.3 Motor units and motor coaches
   1.2 **Freight cars**
   1.2.1 Covered wagons
   1.2.2 Loading units
   1.2.3 Flat wagons
   1.2.4 Self-discharging wagons
   1.2.5 Other standard-type rail cars
   1.2.6 Special-purpose rail cars
   1.2.7 Tank wagons
   1.3 **Locomotives**
   1.4 **Magnetic levitation trains**
   1.5 **Narrow-gauge railway vehicles**
   1.6 **Special-purpose cars**
   1.7 **Rack railway-train**
   1.8 **Other**

2. **Intermodal transport vehicles**
   2.1 **Other**

3. **Subassemblies and components**
   3.1 **Driving gear**
   3.1.1 Exhaust gas silencer
   3.1.2 Driving systems and electronics
   3.1.3 Traction motors
   3.1.4 Vehicle lubrication
   3.1.5 Generators
   3.1.6 Transmissions
   3.1.7 Hydraulic drive systems for railway vehicles
   3.1.8 Motors / Engines
   3.1.9 Traction motor ventilation
   3.1.10 Traction motor housing
   3.1.11 Traction motor preheaters
   3.1.12 Motor oil refilling systems
   3.1.13 Pneumatic material
   3.1.14 Wheelset gear sets
   3.1.15 Lubricating systems
   3.1.16 System technology
   3.2 **Energy / Electrotechnology**
   3.2.1 Automation technology
   3.2.2 Battery holders
   3.2.3 Batteries
   3.2.4 Battery isolators
   3.2.5 Ventilation / evacuation systems
   3.2.6 Operating and control panels
   3.2.7 DC / DC converters
   3.2.8 Diagnosing equipment
   3.2.9 Compressed air supply
   3.2.10 Pressure measuring equipment
   3.2.11 Electromechanical components
   3.2.12 Energy storage
   3.2.13 Energy supply systems
   3.2.14 Energy meter
   3.2.15 Earthing contacts
   3.2.16 Driver panels
   3.2.17 Master controller
   3.2.18 Vehicle control system
   3.2.19 Field bus components
   3.2.20 Floodlight keyboards
   3.2.21 Filling level measuring technology
   3.2.22 Handheld lamps
   3.2.23 Inductive Components
   3.2.24 Cables and lines
   3.2.25 Cable protection
   3.2.26 Cassettes
   3.2.27 Battery chargers
   3.2.28 Charging rectifiers
   3.2.29 Power switches and switchgear
   3.2.30 Circuit boards
   3.2.31 Control systems
   3.2.32 Tilting systems
   3.2.33 Registration and display systems
   3.2.34 Series terminals
   3.2.35 Relays
   3.2.36 Switching gear
   3.2.37 Switches
   3.2.38 Metal contacts
   3.2.39 Switch cabinets and accessories
   3.2.40 Fuses and accessories
   3.2.41 Special-purpose electric machines
   3.2.42 Connectors
   3.2.43 Control components
   3.2.44 Control cubicles
   3.2.45 Current collectors
   3.2.46 Power generating sets
   3.2.47 Current transformers
   3.2.48 Traction current converters & control systems
   3.2.49 Transformers
   3.2.50 Pantographs
   3.2.51 Overvoltage safety systems
   3.2.52 Inverters
   3.2.53 Interconnection systems
   3.2.54 Converters
   3.2.55 Resistances
   3.2.56 Vehicle components and systems
   3.3.1 Exhaust filtering systems
   3.3.2 Exhaust silencer
   3.3.3 Axle guard sidebearer liners
   3.3.4 Axle guard sidebearer guides
   3.3.5 Acoustic systems
   3.3.6 Armature
   3.3.7 Exterior parts
   3.3.8 Exterior claddings
   3.3.9 Rail hydraulic systems
   3.3.10 Subassembly supports
   3.3.11 Fastening systems
   3.3.12 Lighting systems
   3.3.13 Ventilation systems
   3.3.14 Brake linings
   3.3.15 Brake pads
   3.3.16 Brake disks
   3.3.17 Braking systems
   3.3.18 Front fairings
   3.3.19 Gaskets
   3.3.20 Bogies
   3.3.21 Bogie pivot centre plates
   3.3.22 Compressed air technology
   3.3.23 Thrust collars for tramway bogies
   3.3.24 Rail tyres
   3.3.25 Passenger counting systems
   3.3.26 Vehicle cabins
   3.3.27 Springs / Spring systems
   3.3.28 Radio remote control systems
   3.3.29 Clevis guides
   3.3.30 Casing systems
   3.3.31 Articulations
   3.3.32 Rocker bearings
   3.3.33 Joint rod sockets
   3.3.34 Cardan shafts
   3.3.35 Friction bearings
   3.3.36 Cast metal wheels
   3.3.37 Integrated subassemblies
   3.3.38 Air ducts
   3.3.39 Carbon brushes
   3.3.40 Carbon strips
   3.3.41 Compressors
   3.3.42 Capacitors
   3.3.43 Ball bearings
   3.3.44 Cooling systems
   3.3.45 Couplers
   3.3.46 Couplings
   3.3.47 Coupling adaptors
   3.3.48 Bearing housings
   3.3.49 Profiles for lighting sittings
   3.3.50 Air filter
   3.3.51 Tilting technology
   3.3.52 Impact protection modules
   3.3.53 Sections
   3.3.54 Buffer
   3.3.55 Radar technology
   3.3.56 Wheelsets
   3.3.57 Wheelset pumps
   3.3.58 Friction pads for railway vehicles
   3.3.59 Rescue tools
   3.3.60 Sooty particle filters
   3.3.61 Rail brakes
3.3.62 Hoses
3.3.63 Locks and fittings
3.3.64 Welded assemblies, underfloor-components
3.3.65 Vibration absorbers
3.3.66 Sensors
3.3.67 Self-locking nuts
3.3.68 Special sections for rail car construction
3.3.69 Wheel flange lubrication systems
3.3.70 Shock absorbers
3.3.71 Flexible shunt assemblies
3.3.72 Testing systems
3.3.73 Thermocouples
3.3.74 Gangway installations
3.3.75 Valves
3.3.76 Connection systems
3.3.77 Wiring systems
3.3.78 Locking technology and systems
3.3.79 Haunch, air ducts and flow sections
3.3.80 Car bodies
3.3.81 Antifriction bearings
3.3.82 Resistance thermometers
3.3.83 Push / Pull devices
3.3.84 Coupler carriers
3.4 Materials
3.4.1 Bent components in aluminium / steel
3.4.2 Insulating materials
3.4.3 Sealing materials
3.4.4 Flat products
3.4.5 Rubber articles
3.4.6 Rubber-metal connections
3.4.7 Cast parts
3.4.8 Insulation materials
3.4.9 Adhesives
3.4.10 Structural foams
3.4.11 Plastics
3.4.12 Coating
3.4.13 Sound insulation materials
3.4.14 Melamine resin foam
3.4.15 Upholstery materials
3.4.16 Foams
3.4.17 Lubricants
3.4.18 Protective films
3.4.19 Special light-weight insulating materials
3.4.20 Steel products
3.4.21 Composite materials
3.4.22 Water varnish
3.4.23 Materials for lightweight and sandwich construction
3.5 Other
4. Service for vehicles
4.1 Maintenance
4.1.1 Exhaust systems
4.1.2 Re-railing equipment and systems
4.1.3 Sand filling systems
4.1.4 Bogie testing plants
4.1.5 Corner force measuring equipment
4.1.6 Disposal systems
4.1.7 Replacement parts
4.1.8 Lifting devices for tracked vehicles
4.1.9 Inspection devices and systems
4.1.10 Maintenance systems
4.1.11 Varnishing devices
4.1.12 Measuring equipment and systems
4.1.13 Wheel force measurement systems
4.1.14 Wheelset treatment
4.1.15 Wheelset diagnostic systems
4.1.16 Category of maintenance
4.1.17 Foils / films
4.1.18 Testing devices and systems
4.1.19 Maintenance machines
4.1.20 Workshop equipment
4.2 Cleaning
4.2.1 Vehicle washing systems
4.2.2 Surface treatment
4.2.3 Cleaning equipment / technology
4.2.4 Special cleaning services
4.2.5 Waste-water-treatment
4.3 Refurbishment
4.3.1 Expertises
4.3.2 Restoration
4.3.3 Damage repair and management
4.4 Services
4.4.1 Railway application testing
4.4.2 Design
4.4.3 Commissioning
4.4.4 Engineering services
4.4.5 Maintenance management systems
4.4.6 Marking
4.4.7 Systems analysis
4.4.8 Transport of railway vehicles
4.4.9 Workshop services
4.5 Other
5. Interiors
5.1 Vehicle equipment
5.1.1 Handicapped accessible equipment
5.1.2 Floor coverings
5.1.3 Window systems
5.1.4 Driver consoles
5.1.5 Luggage racks
5.1.6 Stay bars
5.1.7 Hand-held lamps
5.1.8 Interior furnishings
5.1.9 Lamps
5.1.10 Upholstery systems
5.1.11 Roller blind systems
5.1.12 Seats and seating systems
5.1.13 Sanitary equipment
5.1.14 Sanitary cubicles
5.1.15 Textiles
5.1.16 Glazing systems
5.2 Finishing / Information / Air conditioning / Security
5.2.1 Anti-pinch systems
5.2.2 Fire protection isolation
5.2.3 Flooring systems
5.2.4 Fans for railway components
5.2.5 Heating systems
5.2.6 Information- and advertising systems
5.2.7 Interior design systems
5.2.8 Interior lining
5.2.9 Installation equipment
5.2.10 Cabin air ventilation / -climatisation
5.2.11 Air-conditioning systems
5.2.12 Emergency systems
5.2.13 Sanitary systems
5.2.14 Door furniture
5.2.15 Door opener push buttons
5.2.16 Door controls
5.2.17 Door systems
5.2.18 Surveillance systems
5.2.19 Detainment systems
5.3 Travel Catering & Comfort services
5.3.1 Station catering
5.3.2 Accessories / Amenities
5.3.3 Catering service provider
5.3.4 Beverages
5.3.5 Hygiene
5.3.6 Kitchen equipment
5.3.7 Refrigeration and counter systems
5.3.8 Food
5.3.9 Trolleys
5.3.10 Service equipment
5.3.11 Food dispensing
5.3.12 Food / Beverage vending machines
6. Infrastructure / Railway Construction
6.1 Construction work
6.1.1 Electrical power systems
6.1.2 Overhead contact line
6.1.3 Building construction
6.1.4 Civil engineering and construction
6.1.5 Maintenance
6.1.6 Control and signalling technology
6.1.7 Superstructures

Railway Infrastructure
8.2.3 Journey analysis systems
8.2.4 Geo information systems
8.2.5 Efficiency control
8.3 Components for information technology
8.3.1 Sensors
8.4 Communication systems
8.4.1 Digital radio systems
8.4.2 Interphone systems
8.4.3 Internet systems
8.4.4 Mounting systems for train radio equipment
8.4.5 Train radio systems
8.5 Management systems
8.5.1 Plant management systems
8.5.2 Depot management
8.5.3 Facility management
8.5.4 Infrastructure management systems
8.6 Lean production
8.7 Operation - Rail systems
8.8 Location and navigation systems
8.8.1 Time-table planning
8.8.2 Vehicle deployment
8.8.3 Optimisation
8.8.4 Personnel- and service planning
8.8.5 Resource planning (personnel, wagons, locomotives)
8.8.6 Roster planning
8.9 Safety and control engineering
8.9.1 Cyber security
8.9.2 Passenger alarm systems
8.9.3 Computer-assisted operations control system
8.9.4 Video surveillance systems (CCTV)
8.10 Software / Software development
8.10.1 Computer-based training programme
8.10.2 E-Procurement
8.10.3 Analyses and calculations relating to the dynamics of vehicle movement
8.10.4 Software for project management
8.11 Traffic Management
8.11.1 Traffic data determination
8.11.2 Traffic information systems
8.11.3 Traffic engineering
8.11.4 Traffic control systems
8.12 Other
8.12.1 Freight traffic logistics
8.12.2 Fleet management systems
8.12.3 Hazardous cargo transports
8.12.4 Identification systems
8.12.5 Combined transport
8.12.6 RFID tracking
8.12.7 Shipment tracking systems
8.12.8 Loading / Unloading systems and organisation
8.12.9 Interchangeable containers, changing systems
8.12.10 Swap bodies, systems
8.12.11 Other

9. Freight traffic logistics
9.1 Fleet management systems
9.2 Hazardous cargo transports
9.3 Identification systems
9.4 Combined transport
9.5 RFID tracking
9.6 Shipment tracking systems
9.7 Loading / Unloading systems and organisation
9.8 Interchangeable containers, changing systems
9.9 Swap bodies, systems
9.10 Other

10. Services
10.1 Institutions / Media / Transport companies
10.1.1 Authorities
10.1.2 Industrial parks
10.1.3 Freight traffic companies
10.1.4 Freight traffic centres
10.1.5 Passenger transport companies
10.1.6 Technology and incubation units
10.1.7 Associations
10.1.8 Organisations
10.1.9 Joint transport authorities
10.1.10 Publishing houses
10.1.11 Business development
10.1.12 Science, research and development
10.1.13 Railway infrastructure companies
10.2 Services in the transport industry
10.2.1 Health and safety
10.2.2 Recruitment agency
10.2.3 Services shop floor level
10.2.4 Documentation
10.2.5 Passenger survey
10.2.6 Financial services
10.2.7 Education and training
10.2.8 Risk protection
10.2.9 Trade
10.2.10 Engineering services
10.2.11 Leasing
10.2.12 Marketing
10.2.13 Testing services
10.2.14 Recycling
10.2.15 Expert services
10.2.16 Insurances
10.2.17 Certification
10.3 Analysis / Consulting / Development / Planning
10.3.1 Execution planning
10.3.2 Consultancy
10.3.3 Design
10.3.4 Engineering
10.3.5 Complete solution for planning and design
10.3.6 Noise and vibration reduction
10.3.7 Studies, conceptual and system planning
10.3.8 Project planning
10.3.9 Simulation / Calculation of power networks
10.3.10 Systemanalysis / -development
10.4 Realisation / Project -Management
10.4.1 Electric project management
10.4.2 Contract and claims -, project and construction management
10.4.3 Other
10.5 Mobility+
10.6 Autonomous driving
10.6.1 Bike sharing
10.6.2 Car sharing
10.6.3 Chauffer-Services
10.6.4 Digital mobility platforms
10.6.5 First/last mile
| 10.6.7 | E-Scooter sharing |
| 10.6.8 | Car rental |
| 10.6.9 | Mobility apps |
| 10.6.10 | Ridepooling |
| 10.6.11 | Rideselling |
| 10.6.12 | Ridesharing |
| 10.6.13 | Taxiservices |
| 10.6.14 | Vertical Take-Off and Landing VTOL |
| 10.6.15 | Other |

## Tunnel Construction

### 11. Tunnel Construction

#### 11.1. Construction machines, -parts and components

- **11.1.1** Equipment for removing excavated material
- **11.1.2** Power plant
- **11.1.3** Rock-crushing equipment
- **11.1.4** Building site equipment
- **11.1.5** Drilling platforms, supports and accessories
- **11.1.6** Hammer drill
- **11.1.7** Drilling steels and rock drilling bits
- **11.1.8** Drilling derricks
- **11.1.9** Moisture separators
- **11.1.10** Conveyor belt and -systems
- **11.1.11** Geotechnical instruments
- **11.1.12** Track transport and carrying devices
- **11.1.13** Pick wheels
- **11.1.14** Hydraulic excavators & breakers
- **11.1.15** Injection devices and accessories
- **11.1.16** Injection packer and accessories
- **11.1.17** Injection hose systems
- **11.1.18** Cables and accessories
- **11.1.19** Compressors and pneumatical tools
- **11.1.20** Cranes / Lifting equipment
- **11.1.21** Machines and systems for track construction
- **11.1.22** Microtunnelling and trenchless headings
- **11.1.23** Piling equipment / systems
- **11.1.24** Pumps
- **11.1.25** Shaft boring devices
- **11.1.26** Lining and scaffolding
- **11.1.27** Excavating machines for slurry trenches
- **11.1.28** Probe / diamond core cutters
- **11.1.29** Rail-head equipment / drilling jibs
- **11.1.30** Transport- and feed systems
- **11.1.31** Tunnel boring machines
- **11.1.32** Full face TBMs
- **11.1.33** Grouting, pouring and injection machines
- **11.1.34** Heading shields
- **11.1.35** Capstans
- **11.1.36** Crushing machines
- **11.1.37** Access equipment

#### 11.2. Finishing

- **11.2.1** Support devices / support
- **11.2.2** Compensating plate
- **11.2.3** Building industry
- **11.2.4** Fastening systems
- **11.2.5** Lighting systems
- **11.2.6** Concrete vibrators
- **11.2.7** Ground freezing
- **11.2.8** Ground stabilisation
- **11.2.9** Improvement of land
- **11.2.10** Electrification
- **11.2.11** Electrotechnology
- **11.2.12** Dedusting systems
- **11.2.13** Drainage and pump systems
- **11.2.14** Rock bolts / anchors
- **11.2.15** Gas-extraction equipment / systems
- **11.2.16** Impregnate / Sealing of facing
- **11.2.17** Air conditioning / ventilation
- **11.2.18** Air conduction systems
- **11.2.19** Air cleaning / waste-air disposal
- **11.2.20** Technical engineering and terotechnology
- **11.2.21** Relining
- **11.2.22** Pipes and pipe connections
- **11.2.23** Shaft sinking
- **11.2.24** Shaft linings
- **11.2.25** Slurry walls, shields and trenches
- **11.2.26** Drill-and-blast tunnelling
- **11.2.27** Tunnel supports
- **11.2.28** Power systems
- **11.2.29** Tunnel coatings
- **11.2.30** Tunnel membranes, water stops
- **11.2.31** Planking
- **11.2.32** Reinforcement and tensioning device
- **11.2.33** Gates and doors

#### 11.3. Building and other materials

- **11.3.1** Concrete
- **11.3.2** Bitumen
- **11.3.3** Injection products
- **11.3.4** Gypsum
- **11.3.5** Lime
- **11.3.6** Gravel
- **11.3.7** Mortar
- **11.3.8** Sand
- **11.3.9** Foam and polymeres
- **11.3.10** Ballast
- **11.3.11** Explosives
- **11.3.12** Shotcrete / Concrete additives
- **11.3.13** Clay
- **11.3.14** Grouting materials
- **11.3.15** Cement and additives

#### 11.4. Maintenance

- **11.4.1** Preservation, decontamination, backfitting
- **11.4.2** Hydraulic service equipment
- **11.4.3** Lubricants
- **11.4.4** Tunnel maintenance

#### 11.5. Safety features

- **11.5.1** Safety at work
- **11.5.2** Site safety
- **11.5.3** Fire protection
- **11.5.4** Protection against dangers

#### 11.6. Communication

- **11.6.1** Radio systems
- **11.6.2** Interphone systems
- **11.6.3** Internet systems
- **11.6.4** Underground communications
- **11.6.5** Management systems
- **11.6.6** Software
- **11.6.7** Telecommunication
- **11.6.8** Video systems

#### 11.7. Services / Consulting

- **11.7.1** Calls for tenders / drafting and awarding contracts
- **11.7.2** Construction-site logistics
- **11.7.3** Authorities
- **11.7.4** Consultancy
- **11.7.5** Operational, environmental and safety equipment / systems
- **11.7.6** Documentation
- **11.7.7** Trade publications
- **11.7.8** Financing / Insurance
- **11.7.9** Geology
- **11.7.10** Geotechnical services
- **11.7.11** Engineering services
- **11.7.12** Expert services
- **11.7.13** Monitoring harmful substances
- **11.7.14** System analysis, -development
- **11.7.15** Technology centre
- **11.7.16** Associations, organisations
- **11.7.17** Publishers
- **11.7.18** Measurement
- **11.7.19** Contract and claims-, project and construction management
- **11.7.20** Science, research & development
- **11.7.21** Certification

#### 11.8. Clothing / Workwear

- **11.8.1** Geo textiles
- **11.8.2** Headgear
- **11.8.3** Protective clothing
- **11.8.4** Shoes

#### 11.9. Other

- **11.9.1** Geo textiles
- **11.9.2** Headgear
- **11.9.3** Protective clothing
- **11.9.4** Shoes