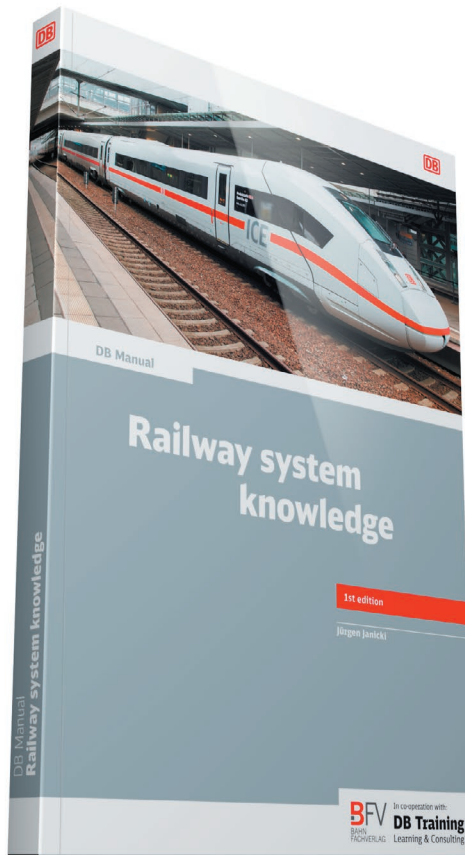


DB Manual

Railway system knowledge



CONTENTS

Contents

1 Basics

1.1 Overview of the overall rail system

- 1.1.1 Introduction
 - 1.1.2 Environmental aspects
 - 1.1.3 Structure of the rail system
 - 1.1.4 Rail operations
 - 1.1.5 The railway network
 - 1.1.6 Occupations in the integrated rail system
-

1.2 Basic principles for construction and rail operations

- 1.2.1 Railway law
 - 1.2.2 European directives and regulatory provisions
 - 1.2.3 Railway supervision and regulatory framework
 - 1.2.4 Technical specifications for interoperability
 - 1.2.5 Railway regulations
 - 1.2.6 Rail companies
 - 1.2.7 Associations
 - 1.2.8 Track access
 - 1.2.9 Operation of railway vehicles
 - 1.2.10 Train driver driving authorisation
 - 1.2.11 Planning and construction of railway infrastructure
 - 1.2.12 Barrier-free access to the rail system
-

1.3 Development of the rail system in Germany

- 1.3.1 The origins of the rail system
 - 1.3.2 Deutsche Reichsbahn
 - 1.3.3 Deutsche Bundesbahn (DB) and Deutsche Reichsbahn (DR)
 - 1.3.4 Rail Reform
-

2 Railway vehicles

2.1 Overview

-
- 2.1.1 Classification and distinction
 - 2.1.2 Standard vehicles
 - 2.1.3 Special vehicles
 - 2.1.4 Vehicle combinations
-

2.2 Vehicle technology

- 2.2.1 Vehicle superstructure
 - 2.2.2 Coupling systems
 - 2.2.3 Vehicle inscriptions
 - 2.2.4 Traction technology
-

3 Traffic types

3.1 Freight transport

- 3.1.1 Introduction
 - 3.1.2 Single wagonload transport
 - 3.1.3 Block train transport
 - 3.1.4 Networked railway
 - 3.1.5 Multimodal transport
 - 3.1.6 Works transport
 - 3.1.7 Transport of dangerous goods
 - 3.1.8 Freight wagons
-

3.2 Passenger transport

- 3.2.1 Train categories
 - 3.2.2 Train concepts
 - 3.2.3 High-speed traffic
 - 3.2.4 Service design in passenger transport
 - 3.2.5 Competition in regional and local rail passenger transport services
-

4 Railway infrastructure

4.1 Assets for rail operations

- 4.1.1 Introduction
 - 4.1.2 Track structure
 - 4.1.3 Points and crossings
 - 4.1.4 Track stops
 - 4.1.5 Track route elements
-

4.1.6	Shunting yards
4.1.7	Building and underground constructions
4.1.8	Level crossings
4.1.9	Signal boxes
4.1.10	Signals
4.1.11	Turntables, transfer tables

4.2 Power supply systems

4.2.1	Introduction
4.2.2	Traction power
4.2.3	Contact line systems
4.2.4	Design and construction of the overhead contact line system
4.2.5	DC current systems

4.3 Handling facilities

4.3.1	Definition
4.3.2	Refuelling facilities
4.3.3	Cleaning facilities
4.3.4	Supply and disposal facilities

4.4 Passenger transport facilities

4.4.1	Stations
4.4.2	Structural elements at passenger transport facilities
4.4.3	Interfaces to other modes of transport

4.5 Freight transport facilities

4.5.1	Introduction
4.5.2	Transshipment terminals

4.6 Miscellaneous transport facilities

4.6.1	Rail ferry terminals
-------	----------------------

5 Rail operations

5.1 Railway vehicle movements

5.1.1	Train sequence regulation and safeguarding
5.1.2	Operating regimes
5.1.3	Train movements
5.1.4	Shunting movements

-
- 5.1.5 Train formation
 - 5.1.6 Emergency management
-

5.2 Planning rail operations

- 5.2.1 Operations planning
 - 5.2.2 Train paths
 - 5.2.3 Train path pricing system (TPS 2001)
 - 5.2.4 Further development of the train path pricing system (TPS 2017)
 - 5.2.5 Timetable and timetable planning
-

6 Maintenance

6.1 Introduction

- 6.1.1 Task definition and terms
-

6.2 Vehicle maintenance

- 6.2.1 Maintenance system
 - 6.2.2 Depots and maintenance shops
-

6.3 Track infrastructure maintenance

- 6.3.1 Task definition
 - 6.3.2 Repair work
 - 6.3.3 Track conversion
-

6.4 Accident prevention

- 6.4.1 Working in the track area
 - 6.4.2 Protective clothing
 - 6.4.3 Overhead contact line systems
-

7 Integrated rail system

7.1 Subsystems and mutual dependencies

- 7.1.1 Wheel-rail system
 - 7.1.2 Technical framework of the track
 - 7.1.3 Collection of current
 - 7.1.4 High-speed systems
 - 7.1.5 Environmental aspects
-

7.2 Railway brake technology

- 7.2.1 Technical fundamentals of brakes
 - 7.2.2 Brake designs and modes of operation
 - 7.2.3 Indirectly acting, automatic air brake
 - 7.2.4 Mechanical brake components
 - 7.2.5 Additional equipment and systems
 - 7.2.6 Adjusting devices
 - 7.2.7 Brake indicators
 - 7.2.8 Brake inscription
 - 7.2.9 Braked weight, braked weight percentage
 - 7.2.10 Operating and checking brakes in rail operations
-

7.3 Loading freight wagons and load securing

- 7.3.1 Loading freight wagons
 - 7.3.2 Load securing
-

7.4 Train protection technology

- 7.4.1 Introduction
 - 7.4.2 Intermittent automatic train-running control (PZB)
 - 7.4.3 Continuous automatic train-running control (LZB)
 - 7.4.4 European Train Control System (ETCS)
 - 7.4.5 Driver's safety device (DSD)
 - 7.4.6 Train radio
-

7.5 System changeover

- 7.5.1 System boundaries
-

7.6 Vehicle dynamics

- 7.6.1 Introduction
 - 7.6.2 Air drag and rolling resistance
 - 7.6.3 Train movement sections
 - 7.6.4 Tractive force
-

8 Further rail transport systems

8.1 Trams

- 8.1.1 Basic principles for construction and operations
-

-
- 8.1.2 Tram
 - 8.1.3 Overhead and underground railway
 - 8.1.4 Monorail (saddlebag monorail, suspension railway)
-

8.2 Track railways for overcoming large ascending grades

- 8.2.1 Introduction
 - 8.2.2 Cog railway
 - 8.2.3 Cable car
-

9 Further development of the rail system

9.1 Future trends

- 9.1.1 Influencing factors and developments
-

9.2 Transport development

- 9.2.1 Passenger transport
 - 9.2.2 Freight transport
 - 9.2.3 Development of the railway market
-

9.3 Further development of system components

- 9.3.1 Infrastructure
 - 9.3.2 Rail operations
-