DIN EN 16432-1:2017-09 (E)

Railway applications - Ballastless track systems - Part 1: General requirements

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Abbreviations 8

5 External actions 8
5.1 Railway traffic loading 8
5.1.1 General 8
5.1.2 Vertical loads 8
5.1.3 Lateral loads 10
5.1.4 Longitudinal loads 10
5.2 Substructure 11
5.2.1 General 11
5.2.2 Earthworks 11
5.2.3 Bridges 12
5.2.4 Tunnels 13
5.2.5 Transitions 13
5.3 Environmental 14
5.3.1 General 14
5.3.2 Water 14
5.3.3 Temperature 14
5.3.4 Earthquake 15
5.3.5 Chemical exposure, UV exposure and pollution 15

6 System requirements 15
6.1 Track design geometry 15
6.2 Track stability 16
6.3 Structure gauge 16
6.4 Design life 16
6.5 Maintainability 16
6.6 Sustainability 16
6.7 Noise and vibration 16
6.8 Derailment 17
6.9 Electrical interfaces 17
6.9.1 General 17
6.9.2 Rail-to-rail electric insulation 17
6.9.3 Electrical interfaces with traction power supply systems 17
6.9.4 Electrical interfaces with signalling systems 18
6.9.5 Track circuit 18
6.9.6 Electromagnetic Compatibility (EMC) with signalling systems 18
6.10 Fixing of equipment 18

Annex A (informative) Rail temperature increase by using eddy current brake 20

A.1 Determination of rail temperature increase using chart Figure A.1 20

A.2 Determination of rail temperature increase using functions of rail heating and cooling 20
A.2.1 General 20
A.2.2 Heating of the rail 21
A.2.3 Cooling of the rail 21
A.2.4 Example of calculation 21

Annex B (informative) Examples of loop-free and zones with limited metal content to ensure EMC . 23

B.1 Track circuit bond 23
B.2 Detection loop or transmission loop 23
B.3 Balise (Eurobalise) 24
B.4 Wheel sensor 24

Annex C (informative) Example of balise mounting system 25

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC 26

Bibliography 31