DIN EN 13481-2:2022-11 (E)

Railway applications - Track - Performance requirements for fastening systems - Part 2: Fastening systems for concrete sleepers in ballast

Contents

Page

European foreword 3

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Symbols 9

5 Requirements determined by laboratory testing 9
5.1 Specimens used for laboratory testing 9
5.2 Longitudinal rail restraint 10
5.2.1 General case 10
5.2.2 Special case for long structures 10
5.3 Torsional resistance 10
5.4 Clamping force and uplift stiffness 10
5.5 Vertical stiffness 10
5.6 Effect of repeated loading 11
5.7 Effect of exposure to severe environmental conditions 12
5.8 Attenuation of impact loads 12
5.9 Electrical resistance of fastening system and sleeper 12
5.10 Cast-in and glued-in fastening components 12

6 Other requirements 13
6.1 Dimensions 13
6.2 Effect of fastening system tolerances on track gauge 13
6.3 In-service testing 14
6.4 Attenuation of noise and vibration 15

7 Fitness for purpose 15

8 Marking, labelling and packaging 15

Annex A (informative) Vibration and noise 16

A.1 General 16
A.2 Symbols 16
A.3 Parameters for environmental vibration calculations 16
A.4 Calculating the vibration attenuation 17
A.5 Environmental noise 17

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive (EU) 2016/797 aimed to be covered 18

Bibliography 19