

# DIN EN 17149-1:2024-06 (E)

## Railway applications - Strength assessment of rail vehicle structures - Part 1: General

---

<b>Contents</b>		<b>Page</b>
European foreword .....		3
Introduction .....		4
1	Scope .....	5
2	Normative references .....	5
3	Terms and definitions .....	5
3.1	General terms and strength related terms .....	5
3.2	Material related terms .....	7
3.3	Terms related to welding .....	9
3.4	Static related terms .....	14
3.5	Fatigue related terms .....	14
4	Symbols and abbreviations .....	18
5	Linear stress determination .....	25
5.1	General .....	25
5.2	Parent material .....	25
5.3	Welded joints .....	25
5.3.1	General .....	25
5.3.2	Evaluation point .....	26
5.4	Determination of stresses by test .....	29
6	Modes of structural failure .....	30
6.1	Collapse .....	30
6.2	Rupture .....	30
6.3	Significant permanent deformation .....	30
6.4	Low cycle fatigue .....	30
6.5	High cycle fatigue .....	30
7	Partial factors for covering uncertainties .....	30
7.1	General .....	30
7.2	Partial factor for loads L .....	31
7.3	Partial factor for the component strength M .....	31
7.3.1	General .....	31
7.3.2	Consequence of failure .....	32
7.3.3	Degree of the validation process .....	32
8	Strength assessment procedure .....	32
9	Tolerances and uncertainties in respect to structural strength .....	32
9.1	General .....	32
9.2	Influence of manufacturing on material properties .....	33
9.3	Influence of manufacturing on dimensional tolerances .....	33
9.4	Loads .....	33
9.5	Validation process .....	33
Bibliography .....		34