

# DIN 50142:2019-09 (E)

## Testing of metallic materials - Flat bending fatigue test

---

### Contents

	Page
Foreword .....	3
Introduction.....	4
1    Scope .....	5
2    Normative references .....	5
3    Terms and definitions.....	5
4    Symbols .....	6
5    Principle.....	6
6    Test set-up.....	7
7    Verification of the bending stress.....	8
7.1    General .....	8
7.2    Introduction.....	8
7.3    Preparation of verification.....	11
7.4    Verification procedure .....	11
7.5    Calculating the correction factor .....	11
8    Specimens.....	12
8.1    Specimen characteristics .....	12
8.2    Specimen preparation .....	12
8.3    Storage and handling.....	13
9    Test procedure .....	13
10    Evaluation.....	13
11    Documentation.....	13
Annex A (informative) Example of a device for determining the relationship between the applied bending moment and strain .....	14
Bibliography.....	15

### Figures

Figure 1 — Principle of the plane bending fatigue test for any mean loads (schematic).....	7
Figure 2 — Principle of the plane bending fatigue test for pulsating load ( $ F_m  > F_a$ ) (schematic).....	8
Figure 3 — Form and positional tolerances for specimen with strain gauges for a specimen with circular cross-section as in DIN EN ISO 1101:2017-09 .....	10
Figure 4 — Form and positional tolerances for specimen with strain gauges for a specimen with rectangular cross-section as in DIN EN ISO 1101:2017-09 .....	10
Figure A.1 — Device for determining the relationship between the applied bending moment and strain .....	14

### Table

Table 1 — Symbols and their meanings .....	6
--	---