

# ISO 7500-1:2018-02 (E)

**Metallic materials - Calibration and verification of static uniaxial testing machines -  
Part 1: Tension/compression testing machines - Calibration and verification of the  
force-measuring system**

---

## Contents

	Page
Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Symbols .....	2
5 General inspection of the testing machine .....	3
6 Calibration of the force-measuring system of the testing machine .....	3
6.1 General .....	3
6.2 Determination of the resolution .....	4
6.2.1 Analogue scale .....	4
6.2.2 Digital scale .....	4
6.2.3 Variation of readings .....	4
6.2.4 Unit .....	5
6.3 Prior determination of the relative resolution of the force indicator .....	5
6.4 Calibration procedure .....	5
6.4.1 Alignment of the force-proving instrument .....	5
6.4.2 Temperature compensation .....	5
6.4.3 Conditioning of the testing machine and force-proving instrument .....	6
6.4.4 Procedure .....	6
6.4.5 Application of discrete forces .....	6
6.4.6 Verification of accessories .....	7
6.4.7 Verification of the effect of differences in piston positions .....	7
6.4.8 Determination of relative reversibility error .....	7
6.5 Assessment of the force indicator .....	8
6.5.1 Relative indication error .....	8
6.5.2 Relative repeatability error .....	9
6.5.3 Agreement between two force-proving instruments .....	9
7 Class of testing machine range .....	10
8 Verification report .....	10
8.1 General information .....	10
8.2 Results of verification .....	11
9 Intervals between verifications .....	11
Annex A (normative) General inspection of the testing machine .....	12
Annex B (informative) Inspection of the loading platens of the compression testing machines .....	13
Annex C (informative) Uncertainty of the calibration results of the force-measuring system .....	14
Bibliography .....	18