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

## Metallic materials - Calibration and verification of static uniaxial testing machi nes - 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