
**Metallic materials — Calibration and
verification of static uniaxial testing
machines —**

Part 1:

**Tension/compression testing machines
— Calibration and verification of the
force-measuring system**

(<https://standards.iteh.ai>)

*Matériaux métalliques — Étalonnage et vérification des machines
pour essais statiques uniaxiaux —*

Document Preview

*Partie 1: Machines d'essai de traction/compression — Étalonnage et
vérification du système de mesure de force*

[ISO 7500-1:2018](#)

<https://standards.iteh.ai/catalog/standards/iso/bec6d01d-d742-499e-b817-7ff9507df920/iso-7500-1-2018>



Reference number
ISO 7500-1:2018(E)

© ISO 2018

iTeh Standards

(<https://standards.iteh.ai>)

Document Preview

[ISO 7500-1:2018](#)

<https://standards.iteh.ai/catalog/standards/iso/bec6d01d-d742-499e-b817-7ff9507df920/iso-7500-1-2018>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Published in Switzerland

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

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 1, *Uniaxial testing*.

This fifth edition cancels and replaces the fourth edition (ISO 7500-1:2015), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

— the definitions of ΔF , Δm , Δg , E , E' , U , and U' in [Table 1](#) have been editorially revised.

A list of all parts in the ISO 7500 series can be found on the ISO website.