
**Metallic materials — Tensile testing —
Part 1:
Method of test at room temperature**

Matériaux métalliques — Essai de traction —

Partie 1: Méthode d'essai à température ambiante



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Terms and symbols	7
5 Principle.....	8
6 Test piece	8
7 Determination of original cross-sectional area	10
8 Marking the original gauge length.....	10
9 Accuracy of testing apparatus	11
10 Conditions of testing.....	11
11 Determination of the upper yield strength.....	15
12 Determination of the lower yield strength	15
13 Determination of proof strength, plastic extension	15
14 Determination of proof strength, total extension.....	16
15 Method of verification of permanent set strength	16
16 Determination of the percentage yield point extension	16
17 Determination of the percentage plastic extension at maximum force.....	16
18 Determination of the percentage total extension at maximum force.....	17
19 Determination of the percentage total extension at fracture	17
20 Determination of percentage elongation after fracture	18
21 Determination of percentage reduction of area	18
22 Test report.....	19
23 Measurement uncertainty	19
Annex A (informative) Recommendations concerning the use of computer-controlled tensile testing machines	33
Annex B (normative) Types of test pieces to be used for thin products: sheets, strips and flats between 0,1 mm and 3 mm thick	39
Annex C (normative) Types of test pieces to be used for wire, bars and sections with a diameter or thickness of less than 4 mm.....	42
Annex D (normative) Types of test pieces to be used for sheets and flats of thickness equal to or greater than 3 mm, and wire, bars and sections of diameter or thickness equal to or greater than 4 mm	43
Annex E (normative) Types of test pieces to be used for tubes.....	47
Annex F (informative) Estimation of the crosshead separation rate in consideration of the stiffness (or compliance) of the testing machine	49