

PD ISO/TS 18684:2015



BSI Standards Publication

**Timekeeping instruments —
Watch external parts made
of hard materials — General
requirements and test
methods**

bsi.

...making excellence a habit.™

National foreword

This Published Document is the UK implementation of ISO/TS 18684:2015.

The UK participation in its preparation was entrusted to Technical Committee STI/53, Specifications and test methods for jewellery and horology.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015.

Published by BSI Standards Limited 2015

ISBN 978 0 580 83506 3

ICS 39.040.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 October 2015.

Amendments/corrigenda issued since publication

Date	Text affected
-------------	----------------------

**TECHNICAL
SPECIFICATION**

**ISO/TS
18684**

First edition
2015-09-01

**Timekeeping instruments —
Watch external parts made of hard
materials — General requirements
and test methods**

*Instruments horaires — Habillages de montre en matériaux durs —
Exigences générales et méthodes d'essais*



Reference number
ISO/TS 18684:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Requirements, method of control and acceptance criteria	2
4.1 General.....	2
4.2 Mechanical shock resistance.....	2
4.2.1 Requirements and control method.....	2
4.2.2 Acceptance criteria.....	2
4.3 Thermal shock resistance.....	3
4.3.1 Requirements and control method.....	3
4.3.2 Acceptance criteria.....	3
4.4 Corrosion resistance.....	3
4.4.1 Requirements and control method.....	3
4.4.2 Acceptance criteria.....	3
4.5 Wear resistance.....	3
4.5.1 Requirements and control method.....	3
4.5.2 Acceptance criteria.....	3
4.6 Scratch resistance.....	3
4.6.1 Requirements and control method.....	3
4.6.2 Acceptance criteria.....	4
4.7 Impact resistance.....	4
4.7.1 Requirements and control method.....	4
4.7.2 Acceptance criteria.....	4
4.8 Sunlight resistance.....	4
4.8.1 Requirements and control method.....	4
4.8.2 Acceptance criteria.....	4
4.9 Mechanical behaviour of assembled elements.....	4
4.9.1 Requirements and control method.....	4
4.9.2 Acceptance criteria.....	5
Annex A (informative) Hard materials	6
Annex B (informative) Inspection rules	7
Bibliography	8

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. 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. 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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 114, *Horology*.

Introduction

In recent years, hard materials such as tungsten carbide, ceramics, etc., have found several applications in the horological industry, particularly for the external parts of watches, and more particularly in watchcases and some of their accessories such as bezels, crowns, wristbands and clasps.

Their properties in terms of hardness, of wear resistance or of finish quality (brightness) bring many undeniable advantages for this type of application.

This Technical Specification deals with constitutive components of external parts of watches. Given the variety of possibilities in the mounting of these elements, it is not possible to define and to specify “a complete watch made of hard material”.

Manufacturers of hard materials have developed know-how with the aim of satisfying the legal requirements and the criteria of horological standardization, without standards nor specifications that can serve as references. The aim of this Technical Specification is to clarify the general requirements and the test methods for the horological external parts made of hard material.

Timekeeping instruments — Watch external parts made of hard materials — General requirements and test methods

1 Scope

This Technical Specification concerns whole watches, in which all or some of the components of the external parts are made of hard material, with the exception of watch glasses.

It applies to all elements made in massive material whose hardness is greater than or equal to 1 200 Vickers.

It describes the performance in terms of resistance to mechanical and thermal shocks, to corrosion, to scratches, to sunlight exposure and also to the wear of its components.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1413:—¹⁾, *Horology — Shock-resistant watches*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 23160:2011, *Watch cases and accessories — Tests of the resistance to wear, scratching and impacts*

SN 289 120:2013, *Definition of linear types shocks for the wristwatches components*

SN 289 650:2013, *Process to estimate the resistance to chemical and climatic agents of a horological external part*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

external part

<horological context> the watchcase, the bezel, the crown, the push buttons, the wristband and the clasp

3.2

hard material

material whose Vickers hardness is equal to or higher than 1 200 HV1

3.3

massive

<component> having a composition that is macroscopically homogeneous across its entire section

3.4

brittleness

<material or component> susceptibility to breaking, under the effect of a static or dynamic stress, without being significantly plastically deformed

1) To be published. Revises ISO 1413:1984.