

# JIS

JAPANESE  
INDUSTRIAL  
STANDARD

Translated and Published by  
Japanese Standards Association

---

---

**JIS B 7411-1** : 2014

**Glass thermometers for general—  
Part 1: General measuring  
instruments**

---

ICS 17.200.20

Reference number : **JIS B 7411-1 : 2014 (E)**

B 7411-1 : 2014

Date of Establishment: 2014-03-01

Date of Public Notice in Official Gazette: 2014-03-03

Investigated by: Japanese Industrial Standards Committee  
Standards Board

Technical Committee on Testing and Measurement  
Technology

---

JIS B 7411-1:2014, First English edition published in 2016-02

Translated and published by: Japanese Standards Association  
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

---

In the event of any doubts arising as to the contents,  
the original JIS is to be the final authority.

© JSA 2016

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 the publisher.

Printed in Japan

HT/AT

PROTECTED BY COPYRIGHT

## Contents

	Page
Introduction.....	1
1 Scope.....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Classification .....	2
4.1 Category by shape .....	2
4.2 Category by immersion .....	3
5 Applicable errors .....	3
6 Materials.....	3
6.1 Glass .....	3
6.2 Capillary tube .....	3
6.3 Temperature-sensitive liquid.....	4
6.4 Gas filling .....	4
7 Construction .....	4
7.1 Shape.....	4
7.2 Top finish.....	4
7.3 Expansion volume .....	4
7.4 Enlargement of bore.....	4
7.5 Designation and diameters of each part .....	4
7.6 Scale .....	4
7.7 Feature.....	5
7.8 Change in zero indication .....	6
8 Test method.....	6
8.1 Test equipment .....	6
8.2 Instrumental error test .....	8
8.3 Determination of change in zero indication .....	11
9 Inspection .....	11
10 Marking.....	12
Annex JA (informative) Comparison table between JIS and corresponding International Standards .....	22

## Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS B 7411:1997** has been withdrawn and partially replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

**JIS B 7411** series consists of the following 2 parts under the general title “*Glass thermometers for general*”:

*Part 1: General measuring instruments*

*Part 2: Measuring instruments used in transaction or certification*

# Glass thermometers for general— Part 1: General measuring instruments

## Introduction

This Japanese Industrial Standard has been prepared based on the first editions of **ISO 1770** and **ISO 1771** published in 1981 with some modifications of the technical contents, in order to add supplementary items to reflect the actual use in Japan.

The portions given sidelines or dotted underlines are the matters in which the contents of the corresponding International Standards have been modified. A list of modifications with the explanations is given in Annex JA.

## 1 Scope

This Standard specifies liquid-in-glass thermometers for general purpose of solid-stem or enclosed-scale (hereafter referred to as “thermometer”) having a scale range between -100 °C and +500 °C, and on which the scales are arranged to be used for total immersion or partial immersion in the case of solid-stem thermometers and for total immersion in the case of enclosed-scale thermometers.

NOTE : The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 1770:1981 *Solid-stem general purpose thermometers*

ISO 1771:1981 *Enclosed-scale general purpose thermometers* (overall evaluation: MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standards and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent edition of the standard (including amendments) indicated below shall be applied.

JIS Z 8103 *Glossary of terms used in measurement*

## 3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS Z 8103**, and the following apply.

### 3.1 temperature scale

the Celsius scale as defined in the current definition of the International Practical Temperature Scale adopted by the Conférence générale des poids et mesures (CGPM)