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(JWPA)

Piano wires

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

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Wire Products Association (JWPA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS G 3522:1991** is replaced with this Standard.

However, **JIS G 3522:1991** may be applied in the JIS mark certification based on the relevant provisions of Article 19 Clause 1, etc. of the Industrial Standardization Law until February 19, 2015.

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.

Piano wires

Introduction

This Japanese Industrial Standard has been prepared based on the second editions of **ISO 8458-1** and **ISO 8458-2** published in 2002 with some modifications of the technical contents.

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

1 Scope

This Standard specifies piano wires applicable to springs subjected to predominantly dynamic loading (hereafter referred to as “wires”).

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

ISO 8458-1:2002 *Steel wire for mechanical springs—Part 1: General requirements*

ISO 8458-2:2002 *Steel wire for mechanical springs—Part 2: Patented cold-drawn non-alloy steel wire* (Overall evaluation: MOD)

The symbols which denote the degree of correspondence in the contents between the relevant International Standard 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 Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7502 *Micrometer callipers*

JIS G 0201 *Glossary of terms used in iron and steel (Heat treatment)*

JIS G 0404 *Steel and steel products—General technical delivery requirements*

NOTE : Corresponding International Standard: ISO 404:1992 *Steel and steel products—General technical delivery requirements* (MOD)

JIS G 0415 *Steel and steel products—Inspection documents*

NOTE : Corresponding International Standard: ISO 10474:1991 *Steel and steel products—Inspection documents* (IDT)

JIS G 0558 *Steels—Determination of depth of decarburization*

JIS G 3502 *Piano wire rods*

JIS Z 2241 *Metallic materials—Tensile testing—Method of test at room temperature*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS G 0201** and the following apply.

3.1 inline patenting

patenting treatment performed in the cooling process after hot rolling wire rods

3.2 offline patenting

patenting treatment performed following the completion of cooling process after hot rolling wire rods

4 Classification, symbols, applicable wire diameters

Wires shall be classified into three, and their symbols and applicable wire diameters shall be as given in table 1.

Table 1 Classification, symbols and applicable diameters

Classification	Symbol	Applicable diameter	Application
Piano wire Class A	SWP-A	0.08 mm or over up to and incl. 10.0 mm	For springs subjected to predominantly dynamic loading
Piano wire Class B	SWP-B	0.08 mm or over up to and incl. 8.00 mm	
Piano wire Class V	SWP-V	1.00 mm or over up to and incl. 6.00 mm	For valve springs or springs equivalent thereto

5 Material

The wire rod conforming to the specification in **JIS G 3502** shall be used for manufacturing the wire. However, the copper content of the wire rod for SWP-V shall be 0.15 % or under.

6 Method of manufacture

Wires shall be cold processed after offline patenting treatment.

When the wires subjected to inline patenting are used, they shall be followed by offline patenting treatment again.

7 Mechanical properties

7.1 Tensile strength

The tensile strength of wires shall be as given in table 2 when tested in accordance with **11.2**.