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☞ JIS E 1102 : 2001

**Fish plates for rails**

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**ICS** 45.080

**Descriptors** : fish plates, railway rails

**Reference number** : JIS E 1102 : 2001 (E)

## 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 in accordance with the Industrial Standardization Law. Consequently **JIS E 1102 : 1992** is replaced with **JIS E 1102 : 2001**.

This revision, in striving after conformity to the corresponding International Standard, adopts **ISO 6305-1** *Railway components—Technical delivery requirements—Part 1 : Rolled steel fishplates* as the basis.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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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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## Fish plates for rails

**Introduction** This Standard has been prepared based on the first edition of **ISO 6305-1** *Railway components—Technical delivery requirements—Part 1 : Rolled steel fishplates* published in 1981 without modifying the technical contents of the corresponding International Standard, except supplement of the following clauses and technical contents not specified in the corresponding International Standard and deletion of some requirements of that Standard.

While **ISO 6305-1** has no specification for classification of fishplates, this Standard, as relative to flat bottom railway rails of **JIS E 1101**, specifies the classification as usual and further supplements some contents of the former **JIS**.

The parts sidelined or underlined with dots in this Standard show the matters not specified in the corresponding International Standard.

**1 Scope** This Japanese Industrial Standard specifies the quality requirements of the product and the conditions of acceptance testing for fishplates intended for use with railway rails<sup>(1)</sup> of calculated mass equal to or greater than 30 kg/m (hereafter referred to as “fishplates”).

Note <sup>(1)</sup> The **JIS** standards for these rails are listed as follows.

JIS E 1101 *Flat bottom railway rails and special rails for switches and crossings of non-treated steel*

JIS E 1120 *Head hardened rails*

JIS E 1122 *Compromise rails*

JIS E 1123 *End hardened rails*

Remarks 1 The purchaser's attention is drawn to the fact that an invitation to tender should normally be accompanied by such relevant documents as definitions of the conditions of use and manufacture, and in particular those concerning the application of this Standard.

2 The International Standard corresponding to this Standard is as follows.

In addition, 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**.

ISO 6305-1 *Railway components—Technical delivery requirements—Part 1 : Rolled steel fishplates* (MOD)

**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) indicted below shall be applied.

JIS B 7514 *Steel straightedges*

JIS G 0303 *General rules for inspection of steel*

JIS G 1211 *Iron and steel—Methods for determination of carbon content*

- JIS G 1212 *Iron and steel—Methods for determination of silicon content*
- JIS G 1213 *Methods for determination of manganese in iron and steel*
- JIS G 1214 *Iron and steel—Methods for determination of phosphorus content*
- JIS G 1215 *Iron and steel—Methods for determination of sulfur content*
- JIS G 1253 *Iron and steel—Method for spark discharge atomic emission spectrometric analysis*
- JIS G 1256 *Iron and steel—Method for X-ray fluorescence spectrometric analysis*
- JIS G 1257 *Iron and steel—Methods for atomic absorption spectrometric analysis*
- JIS G 1258 *Iron and steel—Methods for inductively coupled plasma atomic emission spectrometry*
- JIS Z 2201 *Test pieces for tensile test for metallic materials*
- JIS Z 2241 *Method of tensile test for metallic materials*
- JIS Z 2243 *Brinell hardness test—Test method*
- JIS Z 9015-2 *Sampling procedures for inspection by attributes—Part 2 : Sampling plans indexed by limiting quality (LQ) for isolated lot inspection*

**3 Classification and symbols** Fishplates shall be classified, with the division by with/without heat treatment, to be symbolized as given in Table 1.

**Table 1 Classification and symbol of fishplates**

Type	Symbol	Type	Symbol
Class 1		Class 2	
For 30 kg rails	30	For 30 kg rails	30H
For 37 kg rails	37	For 37 kg rails	37H
For 40 kgN rails	40N	For 40 kgN rails	40NH
For 50 kg rails	50	For 50 kg rails	50H
For 50 kgN rails	50N	For 50 kgN rails	50NH
For 60 kg rails	60	For 60 kg rails	60H

Remarks : Those in class 1 are without heat treatment and in class 2 are with heat treatment (quenching and tempering).

**4 Mechanical properties and chemical composition** Table 2 gives the mechanical properties and chemical composition of fishplates. The purchaser shall designate the grade of strength, with the type, in his order. In case of no particular designation, to apply I-3 for class 1 and II-2 for class 2.

**Table 2 Mechanical properties and chemical composition of fishplates**

Type and symbol		Strength	Mechanical property			Chemical composition %				
		Grade	Tensile strength (N/m <sup>2</sup> )	Elongation (%)	Hardness of finished surface, HB	C	Si	Mn	P	S
Class 1	30, 37, 40N, 50, 50N, 60	I-1	470 to 570	20 min.	—	—	—	—	—	—
	30, 37, 40N, 50, 50N, 60	I-2	550 to 650	18 min.	—	—	—	—	—	—
	30, 37, 40N, 50, 50N, 60	I-3	569 min.	15 min.	—	0.35 to 0.53	0.15 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.
Class 2	30H, 37H, 40NH, 50H, 50NH, 60H	II-1	690 min. (yield point 480 min.)	12 min.	—	—	—	—	—	—
	30H, 37H, 40NH, 50H, 50NH, 60H	II-2	686 min.	12 min.	262 to 331	0.35 to 0.53	0.15 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.

## 5 Shape and dimensions of fishplates

### 5.1 The shape and dimensions of fishplates shall be as shown in Table 3.

**Table 3 Shape and dimensions of fishplates**

Symbol		No. of Attached Fig.
Class 1	Class 2	
30	30H	Attached Fig. 1
37	37H	Attached Fig. 2
40N	40NH	Attached Fig. 3
50	50H	Attached Fig. 4
50N	50NH	Attached Fig. 5
60	60H	Attached Fig. 6

### 5.2 Dimensional and straightness tolerances The dimensional and straightness tolerances shall be as follows:

- Table 4 gives the dimensional and straightness tolerances, checking methods, etc.
- If, for normal operations and by agreement between the manufacturer and the purchaser, check gauges different from but equivalent to those given in 7.4 are used, only the latter shall be used in case of dispute.