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(JISF)

Carbon Steels for cold heading
—Part 1: Wire rods

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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 The Japan Iron and Steel Federation (JISF) 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 3507-1** : 2005 is replaced with this Standard.

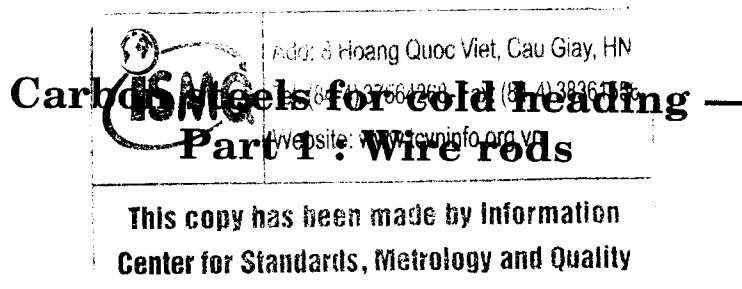
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JIS G 3507 consists of the following 2 parts under the general title “Carbon steels for cold heading”:

Part 1: Wire rods

Part 2: Wires



Introduction

This Japanese Industrial Standard has been prepared based on the second edition of **ISO 4954** published in 1993 with some modifications of the technical contents.

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 JB. Annex JA contains matters that are not given in the corresponding International Standard.

1 Scope

This Standard specifies the carbon steel wire rods for cold heading (hereafter referred to as the “wire rods”) which are mainly used for manufacture of the carbon steel wires for cold heading.

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

ISO 4954 : 1993 *Steels for cold heading and cold extruding* (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 text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS G 0320 *Standard test method for heat analysis of steel products*

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

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

JIS G 0551 *Steels—Micrographic determination of the apparent grain size*

JIS G 0555 *Microscopic testing method for the non-metallic inclusions in steel*

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

3 Classifications and symbols

Wire rods are classified into 6 grades of rimmed or equivalent steels, 11 grades of aluminium-killed steels and 21 grades of killed steels, and their symbols are as given in table 1.

Table 1 Symbols of grades

Symbol of grade	Classification	Symbol of grade	Classification
SWRCH6R SWRCH8R SWRCH10R SWRCH12R SWRCH15R SWRCH17R	Rimmed or equivalent steels	SWRCH15K SWRCH16K SWRCH17K SWRCH18K SWRCH20K SWRCH22K	Killed steels
SWRCH6A SWRCH8A SWRCH10A SWRCH12A SWRCH15A SWRCH16A SWRCH18A SWRCH19A SWRCH20A SWRCH22A SWRCH25A	Aluminium-killed steels	SWRCH24K SWRCH25K SWRCH27K SWRCH30K SWRCH33K SWRCH35K SWRCH38K SWRCH40K SWRCH41K SWRCH43K SWRCH45K	
SWRCH10K SWRCH12K	Killed steels	SWRCH48K SWRCH50K	

4 Manufacturing method

The manufacturing method shall be as follows :

- a) Wire rods shall be manufactured from steel ingot (including cast metal manufactured by continuous casting) by hot rolling.
- b) Wire rods shall be rolled by forging ratio of 4S or over from steel ingot.

5 Chemical composition

Wire rods shall be tested in accordance with 8.1, and the resultant heat analysis values shall satisfy the requirements in table 2.

Table 2 Chemical composition

							Unit : %
Symbol of grade	C	Si	Mn	P	S	Al	Classification
SWRCH6R	0.08 max.	—	0.60 max.	0.040 max.	0.040 max.	—	Rimmed or equivalent steels
SWRCH8R	0.10 max.	—	0.60 max.	0.040 max.	0.040 max.	—	
SWRCH10 R	0.08 to 0.13	—	0.30 to 0.60	0.040 max.	0.040 max.	—	
SWRCH12 R	0.10 to 0.15	—	0.30 to 0.60	0.040 max.	0.040 max.	—	
SWRCH15 R	0.13 to 0.18	—	0.30 to 0.60	0.040 max.	0.040 max.	—	
SWRCH17 R	0.15 to 0.20	—	0.30 to 0.60	0.040 max.	0.040 max.	—	
SWRCH6A	0.08 max.	0.10 max.	0.60 max.	0.030 max.	0.035 max.	0.02 min.	Aluminium-killed steels
SWRCH8A	0.10 max.	0.10 max.	0.60 max.	0.030 max.	0.035 max.	0.02 min.	
SWRCH10 A	0.08 to 0.13	0.10 max.	0.30 to 0.60	0.030 max.	0.035 max.	0.02 min.	
SWRCH12 A	0.10 to 0.15	0.10 max.	0.30 to 0.60	0.030 max.	0.035 max.	0.02 min.	
SWRCH15 A	0.13 to 0.18	0.10 max.	0.30 to 0.60	0.030 max.	0.035 max.	0.02 min.	
SWRCH16 A	0.13 to 0.18	0.10 max.	0.60 to 0.90	0.030 max.	0.035 max.	0.02 min.	
SWRCH18 A	0.15 to 0.20	0.10 max.	0.60 to 0.90	0.030 max.	0.035 max.	0.02 min.	
SWRCH19 A	0.15 to 0.20	0.10 max.	0.70 to 1.00	0.030 max.	0.035 max.	0.02 min.	
SWRCH20 A	0.18 to 0.23	0.10 max.	0.30 to 0.60	0.030 max.	0.035 max.	0.02 min.	
SWRCH22 A	0.18 to 0.23	0.10 max.	0.70 to 1.00	0.030 max.	0.035 max.	0.02 min.	
SWRCH25 A	0.22 to 0.28	0.10 max.	0.30 to 0.60	0.030 max.	0.035 max.	0.02 min.	
SWRCH10 K	0.08 to 0.13	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	Killed steels
SWRCH12 K	0.10 to 0.15	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	
SWRCH15 K	0.13 to 0.18	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	
SWRCH16 K	0.13 to 0.18	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH17 K	0.15 to 0.20	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	
SWRCH18 K	0.15 to 0.20	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH20 K	0.18 to 0.23	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	
SWRCH22 K	0.18 to 0.23	0.10 to 0.35	0.70 to 1.00	0.030 max.	0.035 max.	—	
SWRCH24 K	0.19 to 0.25	0.10 to 0.35	1.35 to 1.65	0.030 max.	0.035 max.	—	
SWRCH25 K	0.22 to 0.28	0.10 to 0.35	0.30 to 0.60	0.030 max.	0.035 max.	—	
SWRCH27 K	0.22 to 0.29	0.10 to 0.35	1.20 to 1.50	0.030 max.	0.035 max.	—	
SWRCH30 K	0.27 to 0.33	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH33 K	0.30 to 0.36	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH35 K	0.32 to 0.38	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH38 K	0.35 to 0.41	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH40 K	0.37 to 0.43	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH41 K	0.36 to 0.44	0.10 to 0.35	1.35 to 1.65	0.030 max.	0.035 max.	—	
SWRCH43 K	0.40 to 0.46	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH45 K	0.42 to 0.48	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH48 K	0.45 to 0.51	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	
SWRCH50 K	0.47 to 0.53	0.10 to 0.35	0.60 to 0.90	0.030 max.	0.035 max.	—	

In all the steel grades in this table, the content limits for Cu, Ni and Cr shall be 0.30 %, 0.20 % and 0.20 %, respectively.

6 Physical properties

6.1 Decarburized depth

For wire rods of SWRCH30K to SWRCH50K, when specified by the purchaser, the decarburized depth test shall be carried out in accordance with 8.2.1, and the average decarburized depth shall be in conformity with table 3. For the wire rods exceeding 32 mm in diameter, however, the decarburized depth shall be agreed between the purchaser and the manufacturer.

Table 3 Average decarburized depth

Unit : mm

Diameter	Ferrite decarburized depth	Total decarburized depth
15 or under	0.02 max.	0.15 max.
Over 15 up to and incl. 25	0.03 max.	0.20 max.
Over 25 up to and incl. 32	0.04 max.	0.25 max.

6.2 Austenitic grain size and non-metallic inclusion

The purchaser may specify austenitic grain size and non-metallic inclusion or either of them for aluminium-killed steels and killed steels. In this case, the examinations specified in 8.2.2 and/or 8.2.3 shall be performed and the specification values shall be agreed between the purchaser and the manufacturer.

7 Appearance, shape, dimensions and tolerances thereof

7.1 Appearance

The appearance of wire rods shall conform to the following:

- a) Wire rods shall be smooth on the surface and free from flaws detrimental to use other than those permitted in b). However, the wire rods may inevitably contain some abnormal portions, since processing of wire rods generally does not allow overall inspection of defects, or opportunity for defects removal. Therefore, where necessary, the treatment of such abnormal portions shall be agreed between the purchaser and the manufacturer.
- b) Surface flaws of wire rods shall be tested by 8.3 and the resultant flaw depth shall not exceed 0.10 mm for aluminium-killed steels and killed steels, and 0.20 mm for rimmed or equivalent steels of diameter 32 mm or under.
- c) If there is a special need to control flaw depth for aluminium-killed steels or killed steels, for wire diameters of 25 mm or under, Class A specification in table JA.1 may be applied by agreement between the purchaser and the manufacturer.
- d) If there is a special need to control flaw depth for rimmed or equivalent steels, for wire diameters of 15 mm or under, Class B specification in table JA.2 may be applied by agreement between the purchaser and the manufacturer.

7.2 Standard diameter

The standard diameter of wire rods shall be as given in table 4.

Table 4 Standard diameter

Unit : mm

5.5,	6,	6.4,	7,	8,	9,	9.5,	10,	11,	12,	13,	14,	15,
16,	17,	18,	19,	20,	22,	24,	25,	26,	28,	30,	32,	34,
36,	38,	40,	42,	44,	46,	48,	50					

7.3 Shape and dimensional tolerances

The diameter tolerance and ovality¹⁾ of wire rods shall be as specified in table 5. If there is a special need to control diameter tolerance and ovality, for wire diameters of 32 mm or under, Class A or Class B specification in table JA.3 may be applied by agreement between the purchaser and the manufacturer.

Note¹⁾ The ovality is the difference between the maximum and minimum diameters on the same sectional surface of a wire rod.

Table 5 Diameter tolerance and ovality

Unit : mm

Diameter	Tolerance	Ovality
15 or under	±0.3	0.4 max.
Over 15 up to and incl. 25	±0.4	0.5 max.
Over 25 up to and incl. 32	±0.5	0.6 max.
Over 32 up to and incl. 50	±0.6	0.7 max.

8 Tests**8.1 Chemical analysis****8.1.1 General requirements for chemical analysis and method of taking analytical sample**

The general requirements for chemical analysis and the method of taking analytical sample for heat analysis shall be in accordance with clause 8 in JIS G 0404.

8.1.2 Method of chemical analysis

The heat analysis shall be performed according to the method specified in JIS G 0320.

8.2 Metallographic test**8.2.1 Decarburized depth test**

The decarburized depth test shall be as follows:

- One sample shall be taken from each lot of the same heat, the same rolling chance and of the same dimension.
- The test method shall be in accordance with 6.1 in JIS G 0558. In this case, the average decarburized depth of cross-section of the wire rod shall be obtained by averaging the values measured at four places on the cross-section quartering the circumference so that one of them passes the point of the maximum decarburized depth.

8.2.2 Austenitic grain size test

The austenitic grain size test shall be made as follows:

- a) The sampling method and number of test pieces shall be agreed between the purchaser and the manufacturer.
- b) The test method shall be in accordance with JIS G 0551. Which of the methods in JIS G 0551 is to be adopted shall be subjected to the agreement between the purchaser and the manufacturer.

8.2.3 Non-metallic inclusion test

The nonmetallic inclusion test shall be performed as follows:

- a) The sampling method and number of test pieces shall be agreed between the purchaser and the manufacturer.
- b) The test method shall be in accordance with JIS G 0555. Unless otherwise specified, the method in Annex 1 of JIS G 0555 shall be applied.

8.3 Surface flaw detection test

The surface flaw detection test shall be as follows:

- a) One test piece shall be taken from one end of a coil belonging to a group of coils of the same heat, the same rolling chance and the same dimensions.
- b) Surface flaw detection shall be carried out by an appropriate method such as the magnetic particle testing or the acid cleaning. The surface flaw of the test pieces shall be measured by means of a measuring device having an adequate precision.

9 Inspection

The inspection shall be carried out as follows :

- a) The general requirements for inspection shall be as specified in **JIS G 0404**.
- b) The chemical composition shall meet the specification in clause 5.
- c) The decarburized depth test shall be applied when designated by the purchaser, and the specification in **6.1** shall be met.
- d) The austenitic grain size test shall be applied when designated by the purchaser, and the specification in **6.2** shall be met.
- e) The non-metallic inclusion test shall be carried out when designated by the purchaser, and the specification in **6.2** shall be met.
- f) The appearance shall meet the specification in **7.1**.
- g) The shape and dimensional tolerances shall meet the specification in **7.3**.
- h) Where either of the items in special quality specification as given in Annex JA is designated by agreement between the purchaser and the manufacturer, the designated specification shall be satisfied.

10 Marking

The wire rods which have passed the inspection shall be marked on each coil or each bundle with the following details. However, when agreed between the purchaser and the manufacturer, a part of them may be omitted.

- a) Symbol of steel grade
- b) Heat number or inspection number
- c) Diameter of wire rod
- d) Manufacturer's name or its identifying brand

11 Report

The report shall conform to clause **13** in **JIS G 0404**. Unless otherwise specified in the order, the class of an inspection document shall be symbol 2.3 or 3.1.B in table 1 in **JIS G 0415**.

Further, the report on items specified in special quality specification in Annex JA shall be as agreed upon between the purchaser and the manufacturer.

Annex JA (normative) Special quality specification

This Annex may be applied to the wire rods in table 1, upon agreement between the purchaser and the manufacturer.

JA.1 Surface flaws on aluminium-killed steels and killed steels

Where there is a need to control surface flaw depth for aluminium-killed steels and killed steels, the requirement in table JA.1 may be applied instead of that given in 7.1 b) upon the agreement between the purchaser and the manufacturer.

Table JA.1 Surface flaw depth on aluminium-killed steels and killed steels

Unit: mm

Class	Diameter	Flaw depth
A	15 or under	0.05 max.
	Over 15 up to and incl. 25	0.07 max.

JA.2 Surface flaws on rimmed or equivalent steels

Where there is a need to control surface flaw depth for rimmed or equivalent steels, the requirement in table JA.2 may be applied instead of 7.1 b) upon the agreement between the purchaser and the manufacturer.

Table JA.2 Surface flaw depth for rimmed or equivalent steels

Unit: mm

Class	Diameter	Flaw depth
B	15 or under	0.15 max.

JA.3 Shape and dimensional tolerances

Where there is a need to control diameter tolerance and ovality, Class A or Class B requirements in table JA.3 may be applied instead of that given in 7.3 upon the agreement between the purchaser and the manufacturer.

Table JA.3 Diameter tolerance and ovality

Unit: mm

Class	Diameter	Tolerance	Ovality
A	15 or under	±0.15	0.23 max.
	Over 15 up to and incl. 25	±0.20	0.30 max.
	Over 25 up to and incl. 32	±0.25	0.38 max.
B	15 or under	±0.23	0.35 max.
	Over 15 up to and incl. 25	±0.30	0.45 max.
	Over 25 up to and incl. 32	±0.38	0.57 max.

Annex JB (informative)

Comparison table between JIS and corresponding International Standard

JIS G 3507-1 : 2010 Carbon steels for cold heading— Part 1:Wire rods		ISO 4954 : 1993 Steels for cold heading and cold extruding					
(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and International Standard by clause		(V) Justification for the technical deviation and future measures
No. and title of clause	Content		Clause	Content	Classification by Clause	Details of technical deviation	
1 Scope	This Standard specifies the chemical composition for carbon steel wire rods for cold heading which are used for manufacturing carbon steel wires for cold heading.		1.1	This International Standard applies to wrought unalloyed and alloyed steels intended for cold heading and are delivered as wire rods, wire or bars. It contains the following sections: S-1 general requirements S-2 steels not intended for heat treatment S-3 case-hardening steels S-4 steels for quenching and tempering S-5 stainless steels	Alteration	Difference in structure: ISO classifies the steels according to the heat treatment (direct hardened steels or hardened steel), and does not divide between wires and wire rods, whereas JIS divides specification according to the types of products and then further into steel grades, and does not mention heat treatment.	Difference in structure of standard can be attributed to difference in actual tradings in markets. In Japan, specialization is advanced so that wire rod manufacturers and wire manufacturers are completely separate, and also, heat treatment is selected arbitrarily by the end user of steel product according to the usage of the product.
2 Normative references							
3 Classification and symbols	Classification into 6 grades of rimmed or equivalent steels, 11 grades of aluminium-killed steels and 21 grades of killed steels, and their symbols.		1.4.5	To be in accordance with ISO/TR 4949 . Sixty-one steel grades are specified including carbon steels, alloy steels, stainless steels, etc. Among the 61 steel grades, 20 of them are carbon steels.	Alteration	Symbols of grades are given according to respective rules of ISO and JIS . Out of 61 steel grades in ISO , 20 steel grades are equivalent to the steel grades in JIS .	ISO/TC 17 permits use of grade symbols stably used in the market of each country.

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(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and International Standard by clause		(V) Justification for the technical deviation and future measures
No. and title of clause	Content		Clause	Content	Classification by Clause	Details of technical deviation	
4 Manufacturing method	Wire rods are hot rolled from steel ingot (including continuous cast metal). Forging ratio from ingot is specified.		1.4.1	Unless otherwise agreed in the order, the process used in making the steel and the product is left to the discretion of the manufacturer.	Addition	JIS specifies the manufacturing method and the forging ratio.	JIS specification values, though not strict enough to create a trade barrier, are laid out for ensuring the quality. Proposal for adding this specification to ISO is being made.
5 Chemical composition	The chemical composition is specified for each of 6 grades of rimmed or equivalent steels, 11 grades of aluminium-killed steels and 21 grades of killed steels.		2.2.2 3.2.2 4.2.2 5.2.2	Chemical composition is specified for each grade of steel. Steels not intended for heat treatment Case-hardening steels Steels for quenching and tempering S-5 Stainless steels	Alteration	The specified chemical composition requirements in JIS and ISO are generally similar. However, for requirements of P and S, ISO sets less strict values compared to JIS.	JIS and ISO are not in accordance with each other regarding P and S (in JIS, P:/0.030 max., S:/0.035 max., except for rimmed or equivalent steels), which are associated with quality deterioration. For ISO steel grades not corresponding to JIS steel grades, suggestion of revision is being made according to the domestic needs.
6 Physical properties	6.1 Decarburized depth: ferrite decarburized depth and total decarburized depth are specified.		1.4.8.2	Bars, wire rods and wire of steels shall be completely free from ferritic decarburized zones. Total decarburized depth is specified according to each heat-treatment condition, and partial decarburization may be specially agreed upon at the time of enquiry and order.	Alteration	JIS permits certain degree of ferritic decarburization. On the other hand, JIS is stricter on total decarburization.	JIS specification is based on the actual trading. Suggestion of revising ISO to be in more accordance with JIS specification will be made.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and International Standard by clause		(V) Justification for the technical deviation and future measures
No. and title of clause	Content		Clause	Content	Classification by Clause	Details of technical deviation	
6 Physical properties	6.2 Austenitic grain size and non-metallic inclusion: examination is performed when designated by the purchaser, and the specification values may be agreed between the purchaser and the manufacturer.		1.4.7	Test shall be performed if required, and the determined austenitic grain size shall be 5 or finer.	Alteration	In both JIS and ISO , grain size requirement is to be based on agreement between the purchaser and the manufacturer. In JIS , it is subject to the agreement between the purchaser and the manufacturer, whereas in ISO , it is specified (through citing ISO 4967 , which specifies the measurement method).	The specifications in both standards are practically the same.
			1.4.9	For steels for quenching and tempering and case-hardening steels, agreements on non-metallic inclusion may be made.			
7 Appearance, shape, dimensions and tolerances thereof	7.1 Appearance: guaranteed values of surface flaw are specified.		1.4.8.1	The surface quality shall be agreed upon.	Addition	ISO does not provide concrete specification, whereas JIS specifies the surface flaw guaranteed values based on needs of the domestic market. Diameter tolerance and ovality are not concretely specified in ISO .	JIS applies specification values that answer to the domestic needs. Adoption of JIS specification for surface flaw guaranteed values should be proposed to ISO in view of improvement of International Standard. Adoption of diameter tolerances and ovality requirements should also be proposed to ISO .
	7.2 Standard diameter: standard diameters are specified.		1.4.11	The standard dimensions shall be agreed upon.			
	7.3 Shape and dimensional tolerances: diameter tolerance and ovality are specified.		1.4.11	The dimensions shall be agreed upon.			
8 Tests	8.1 Chemical analysis: method of taking analytical sample and analysis method are specified.		1.5.4.1	Chemical composition shall be determined in accordance with standards listed in ISO/TR 9769 .	Alteration	ISO/TR 9769 specifies the method of analysis for each element.	The sampling plan applied in JIS is in accordance with that of ISO , and its method of analysis is practically equivalent to that of ISO .

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and International Standard by clause		(V) Justification for the technical deviation and future measures
No. and title of clause	Content		Clause	Content	Classification by Clause	Details of technical deviation	
8 Tests	8.2 Metallographic test						
	8.2.1 Decarburized depth test		1.5.4.7	Decarburized depth test	Identical		
	8.2.2 Austenitic grain size test		1.5.4.4	Austenitic grain size test	Identical		
	8.2.3 Non-metallic inclusion test		1.5.4.5	Non-metallic inclusion test	Identical		
	8.3 Surface flaw detection test		1.5.3.6	Cold-compression test	Alteration	ISO requires the cold-compression test only for products of $6 \text{ mm} \leq d \leq 30 \text{ mm}$. JIS specifies by the flaw guaranteed level.	Proposal for adopting JIS values for the surface flaw guaranteed level shall be made to ISO.
	—		1.5.4.3	Tensile test	Deletion	—	The characteristics of the materials of wire rods do not require a tensile testing.
9 Inspection	Inspection conditions are specified.		1.4	Requirements	Alteration	ISO gives requirements (1.4), but does not give specification on inspection.	JIS added specification clause and contents that are considered necessary in JIS. ISO should apply the same, and relevant proposal will be made to ISO.
10 Marking	Information to be marked on the wire rods to be shipped is specified.		1.3	Ordering	Addition	ISO gives ordering requirements (1.3) but not the marking requirements.	JIS added specification clause and contents that are considered necessary in JIS. ISO should apply the same, and relevant proposal will be made to ISO.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and International Standard by clause		(V) Justification for the technical deviation and future measures
No. and title of clause	Content		Clause	Content	Classification by Clause	Details of technical deviation	
11 Report	Report made according to JIS G 0404 and JIS G 0415 .		—	—	Addition	ISO does not give requirements on report.	JIS added specification clause and contents that are considered necessary in JIS . ISO should apply the same, and relevant proposal will be made to ISO .
Annex JA (normative)	Surface flaw of aluminium-killed steels or killed steels, surface flaw of rimmed or equivalent steels, and shape and dimensional tolerances are specified.		—	—	Addition		See the description for clause 7 in this column.

Overall degree of correspondence between **JIS** and International Standard (**ISO 4954** : 1993) : MOD

NOTE 1 Symbols in sub-columns of classification by clause in the above table indicate as follows:

- Identical : Identical in technical contents.
- Deletion : Deletes the specification item(s) or content(s) of International Standard.
- Addition : Adds the specification item(s) or content(s) which are not included in International Standard.
- Alteration : Alters the specification content(s) which are included in International Standard.

NOTE 2 Symbol in column of overall degree of correspondence between **JIS** and International Standard in the above table indicates as follows :

- MOD : Modifies International Standard.

Errata for JIS (English edition) are printed in *Standardization and Quality Control*, published monthly by the Japanese Standards Association, and also provided to subscribers of JIS (English edition) in *Monthly Information*.

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