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JIS

JAPANESE INDUSTRIAL STANDARD

Nickel Chromium Steels

JIS G 4102 —1979

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Nickel Chromium Steels

G 4102-1979

1. Scope

This Japanese Industrial Standard specifies nickel chromium steels hereinafter referred to as the "steel", mainly for machine structural use manufacured by hot forming, such as hot rolling and forging, ordinarily used after further process of forging, cutting and heat treatment.

2. Classification and Symbol

The steel shall be classified into 5 classes and the respective symbol shall be as given in Table 1.

Table 1. Classes and Symbols

Symbol of class	Reference	Application
	Previous symbol	
SNC 236	SNC 1	SNC 415 and SNC 815 are used mainly for case-hardening.
SNC 415	SNC 21	
SNC 631	SNC 2	
SNC 815	SNC 22	
SNC 836	SNC 3	

3. Method of Manufacture

3.1 The steel shall be manufactured from killed steel ingot.

3.2 The steel shall be rolled or forged from steel ingot to forging ratio not less than 4 S. However, when the forging ratio of the billet for forging or rolling is less than 4 S, a prior agreement between the purchaser and the manufacturer is necessary.

3.3 Unless otherwise specified, the steel shall be left in the state as rolled or as forged.

4. Chemical Composition

The chemical composition of the steel shall be determined by the ladle analysis and the value shall be as given in Table 2.

Appricable standards and Reference standard: See page 10.

Table 2. Chemical Composition

Symbol of class	Reference	Chemical composition %						
	Previous symbol	C	Si	Mn	P	S	Ni	Cr
SNC 236	SNC 1	0.32 ~ 0.40	0.15 ~ 0.35	0.50 ~ 0.80	0.030 max.	0.030 max.	1.00 ~ 1.50	0.50 ~ 0.90
SNC 415	SNC 21	0.12 ~ 0.18	0.15 ~ 0.35	0.35 ~ 0.65	0.030 max.	0.030 max.	2.00 ~ 2.50	0.20 ~ 0.50
SNC 631	SNC 2	0.27 ~ 0.35	0.15 ~ 0.35	0.35 ~ 0.65	0.030 max.	0.030 max.	2.50 ~ 3.00	0.60 ~ 1.00
SNC 815	SNC 22	0.12 ~ 0.18	0.15 ~ 0.35	0.35 ~ 0.65	0.030 max.	0.030 max.	3.00 ~ 3.50	0.70 ~ 1.00
SNC 836	SNC 3	0.32 ~ 0.40	0.15 ~ 0.35	0.35 ~ 0.65	0.030 max.	0.030 max.	3.00 ~ 3.50	0.60 ~ 1.00

Remarks 1. As impurities, Cu shall not exceed 0.30 % throughout all classes.

2. When the product analysis on steel is requested by the purchaser, the tolerance for the product analysis shall conform to Table 3 in JIS G 0321.

5. Appearance, Shape, Dimension and Dimensional Tolerance

5.1 Hot Rolled Steel Bar and Wire Rod

5.1.1 Appearance The appearance of the hot rolled steel bar and wire rod shall be well finished and free from harmful defects in use. However, the steel bar which is supplied in coil is possibly inclusive of some abnormal points.

5.1.2 Reference of Flaw Dressing Reference of flaw dressing of the hot rolled steel bar shall be as follows:

(1) Steel Bar for General Forging Use The flaw dressing of the steel bar for general forging use shall be made smoothly to the depth not exceeding 4 % of nominal size (maximum value 5 mm) below nominal size, and to the total width not exceeding 1/4 of the circumferential length of the same section. If the dressed portions are within the dimensional tolerance, they shall not be considered as the portions dressed.

The permissible amount of remaining flaw shall be as agreed upon between the purchaser and the manufacturer.

(2) Round Bar for Direct Machining The permissible depth of flaw on the round bar for direct machining shall conform to the value given in Table 3 deducted from the nominal size.

Table 3. Permissible Depth of Flaw on Round Bar for Direct Machining (Hot Rolled Steel Bar)

Diameter mm	Permissible depth of flaw
Under 16	Not exceeding 4 % of nominal size with the maximum of 0.5 mm
16 to 50 excl.	Not exceeding 3 % of nominal size with the maximum of 1.0 mm
50 to 100 excl.	Not exceeding 2 % of nominal size with the maximum of 1.5 mm
100 and over	Not exceeding 1.5 % of nominal size with the maximum of 3.0 mm