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JIS B 6913 : 1999

**Process of quenching and
tempering of iron and steel**

ICS 25.200; 77.140.01

Descriptors: hardening, work-hardening, tempering, steels, ferrous metals, heat treatment

Reference number: JIS B 6913: 1999 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS B 6913: 1989** is replaced with **JIS B 6913: 1999**.

Title of Standard, scope, definitions, classification and symbol of processing, material to be processed, processing equipment, processing method, quality of processed product, etc. are altered in this revision.

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,
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Process of quenching and tempering of iron and steel

1 Scope This Japanese Industrial Standard specifies the process of quenching and tempering of iron and steel (hereafter referred to as "processing").

Remarks: Superficial heat treatment is not included in the processing.

2 Normative references The standards listed in the **Attached Table 1** contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards listed shall be applied.

3 Definitions For the purposes of this Standard, the definitions given in **JIS B 6905** apply for the major terms used in this Standard, and the following definitions apply for the rest of the terms used.

- a) **material to be processed** The parts and materials to be subjected to the processing. The parts are finished or almost finished iron and steel products, including machine tools, jigs, equipment or their parts, and the materials are iron and steel and their semi-finished products made by rolling, forging, casting and the like.
- b) **processed product** The parts or materials which have undergone the processing as defined in this Standard.
- c) **single body** A piece or set of processed products.
- d) **heating equipment** In heating equipment for metals heat treatment use, the device to heat materials to be processed for the purpose of heat treatment.
- e) **air furnace** The furnace to heat materials to be processed in the air or in the combustion atmosphere of fuel.
- f) **hot bath vessel** The equipment to heat or cool materials to be processed in a hot bath containing oil, molten salt, molten metal and the like.
- g) **atmospheric furnace** The heating furnace capable of controlling the atmosphere in which materials to be processed are heated to suit the purpose of intended processing, by making the atmosphere reductive, inert, decarburizing or the like as required.
- h) **vacuum furnace** The equipment to heat or cool materials to be processed in the air or in inert or other gases under reduced pressure, thus capable of adjusting the pressure to suit the purpose of processing.
- i) **fluidized-bed furnace** The equipment to heat or cool materials to be processed using ceramics or other fluidized particles as heating media.

4 Classification and symbol of processing The classification and symbol of processing shall be as shown in **Table 1**, depending on the method of processing used: