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JAPANESE INDUSTRIAL STANDARD

**Test Methods for
Performance and Accuracy
of Tenoning Machines**

JIS B 6515—1989

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Test Methods for Performance and
Accuracy of Tenoning Machines

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1. Scope

This Japanese Industrial Standard specifies the testing methods related to functions, running performances and rigidity and methods of inspection on static accuracies and machining accuracies of vertical spindle tenoners specified in No. 6411, horizontal spindle tenoners specified in No. 6412, and multi-head tenoners specified in No. 6413, hereinafter referred to as the "tenoners" of JIS B 0114, the maximum length of processible tenons of which are not more than 100 mm.

Remark: In this Standard, units and numerical values given in { } are in accordance with the conventional units, and are appended for informative reference.

2. Methods for Functional Tests

The functional tests for the tenoners shall be in accordance with Table 1.

Applicable Standards:

JIS B 0114-Glossary of Terms for Wood Working Machinery

JIS B 6507-General Code of Safety for Wood Working Machinery

JIS B 6521-Methods of Measurement for Noise Emitted by Wood Working Machinery

Reference Standards:

JIS B 6501-Test Code for Performance and Accuracy of Wood Working Machinery

JIS Z 8203-SI Units and the Use of their Multiples and of Certain other Units

Table 1. Functional Tests

No.	Test item	Test method
1	Electric apparatus	Before and after the running test, examine the insulating condition once each.
2	Start, stop and running operation of main spindle	At an appropriate spindle speed of rotation, carry out 10 times of start and stop continuously to examine the smoothness and reliability of actions.
3	Changing operation of spindle speed of rotation	Change the spindle speed of rotation in respect to entire marked speeds of rotation to examine the smoothness of the actions of operating device and the reliability of indications.
4	Changing operation of feed speeds	Change the speeds in respect to entire marked feed speeds to examine the smoothness of actions and reliability of indications of the operating device.
5	Manual feed operation	Examine the smoothness and uniformity of actions on the overall length of motion by the hand feed handle, and, in addition, rotate the sensitive hand feed handle several times to examine the smoothness and uniformity.
6	Operations of travel and clamping of spindle head	Allow the main spindle head to travel to examine the smoothness and uniformity of actions throughout overall length of the motion, and examine the reliability of clamping and the smoothness of actions of clamping device at the both ends and centre of the motion.
7	Travel of table	Allow the table to travel, and examine the smoothness and uniformity of actions throughout overall length of the motion.
8	Inclining and clamping operations of table	Incline the table, and examine the smoothness and uniformity of actions throughout the overall length of the motion. Furthermore, at the both ends and centre of the motion, examine the reliability of clamping and smoothness of the action of clamping device.
9	Attaching and detaching of tools	Examine the reliability and smoothness of attaching, detaching and clamping of tools.
10	Attaching and detaching of workpieces	Examine the reliability and smoothness of attaching, detaching and clamping of workpieces.
11	Safety device	Examine the reliability of the safety functions for workers and machine protection functions (see JIS B 6507).

Table 1. (Continued)

No.	Test item	Test method
12	Lubricating device	Examine the reliability of functions such as oil tightness and proper distribution of oil quantity.
13	Oil hydraulic equipment	Examine the reliability of functions such as oil tightness and pressure regulation.
14	Pneumatic pressure equipment	Examine the reliability of functions such as air tightness and pressure regulation.
15	Accessories	Examine the reliability of functions.

Remark: For those tenoners which are not provided with some functions concerned, the equivalent test items given in this Table 1 shall be omitted.

3. Methods of Running Tests

3.1 No-Load Running Test Rotate the main spindle, continue running for 30 to 60 min, measure the required electric power and noises after the bearing temperature has become stable, and record on respective items specified in the Record Format 1 of Table 2. In parallel to this, observe by sense of touch that no abnormal vibration exists.

Furthermore, the measurement of the noises shall be in accordance with JIS B 6521.

Table 2. Record Format 1

No.	Time of measurement o'clock, minute		Temperature °C										Required power					
	Marking	Speed of rotation of main spindle (¹) _{$\frac{\text{min}^{-1}}{\{\text{rpm}\}}$}	Saw bearing		Upper horizontal-cutter bearing		Lower horizontal-cutter bearing		Upper vertical cutter bearing		Lower vertical cutter bearing		Room temperature	Voltage V	Current A	Input kW	Noise dB (A)	Description
	Actual measurement		Left	Right	Left	Right	Left	Right	Upper	Lower	Upper	Lower						