

JIS

JAPANESE INDUSTRIAL STANDARD

**Numerically controlled
woodworking machines —
Marking symbols
for operations**

JIS B 6571—1992

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Numerically controlled woodworking machines
- Marking symbols for operations

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1. Scope

This Japanese Industrial Standard specifies the symbols to be used for marking the operations and matters relating to operations of numerically controlled woodworking machines, as well as the definitions thereof.

Remarks: The woodworking machines mean the machines which remove the unnecessary parts from the work pieces of wood and woody materials by cutting, grinding and the like to make up into the required shapes and profile irregularities, however, in this Standard, saw finishing machines and tool grinders for woodworking machines are also included.

2. Methods for using symbols

2.1 General It should be preferable to use symbols for the markings of operations (in particular, for warnings and restriction of uses).

2.2 Shapes of symbols The symbols illustrated in this Standard shall be those for specifying the basic shapes, but not for specifying the sizes and dimensions thereof. In the case of actual application, it should be preferable to use those which are similar to those as illustrated.

Furthermore, the arrow marks of symbol shall be in accordance with the following:

- (1) The pointed end angle of the arrow marks indicating the moving direction of linear motion, rotary motion and the like shall be 30°.
- (2) The arrow marks indicating the operations of clamping, unclamping, mounting, dismounting, and the like shall be 60° or over in pointed end angle, and the shafts shall be thick and short.

2.3 Combination of symbols The symbols may also be used combining appropriately, as required.

3. Classification

The classification of symbols shall be in accordance with the following:

(1) Forms of motion

- (a) Rectilinear motion and rotation
- (b) Feed motion
- (c) Cutting motion

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(2) Objective elements of operation

- (a) Work piece and machine component
- (b) Spindle and quill

(3) Operations

- (a) Operations in general
- (b) Mounting and dismounting and engaging and disengaging
- (c) Other operations

(4) Safety devices and caution

(5) Machine in general

- (a) Lubrication, oil hydraulics and cutting fluid
- (b) Measurements
- (c) Others

(6) Numerical control

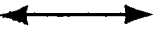
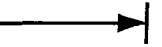
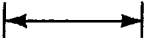
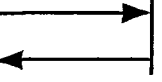
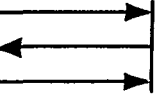
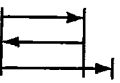
- (a) Data carrier and program
- (b) Numerical control functions

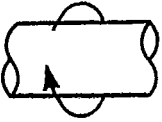
4. Symbols

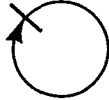
The symbols and definitions thereof shall be in accordance with the following:

(1) Forms of motions

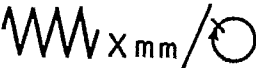
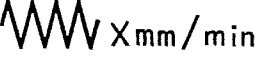
(a) Rectilinear motions and rotation

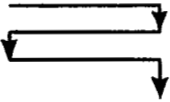
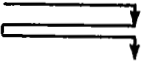
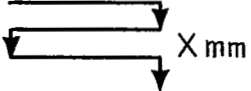
No.	Symbol	Definition	Equivalent English (Informative reference)
101		Direction of rectilinear motion Remarks: When the direction of motion is in opposite direction  may also be permissible.	direction of continuous rectilinear motion
102		Rectilinear motion in two directions	rectilinear motion in two directions
103		Interrupted rectilinear motion Remarks: When in two directions 	interrupted rectilinear motion
104		Rectilinear motion to the limited position that stops at the end position Remarks: When limited in two directions 	limited rectilinear motion
105		One reciprocating rectilinear motion between the limited positions that stops after one round trip	limited rectilinear motion and return
106		Oscillating rectilinear motion (continuous) Remarks: When the last limited position lies beyond the returning point. 	Oscillating rectilinear motion (continuous)
107		Direction of continuous rotation	direction of continuous rotation
108		Rotation in two directions	rotation in two directions

No.	Symbol	Definition	Equivalent English (Informative reference)
109		Direction of interrupted rotation Remarks: When in two directions 	direction of interrupted rotation
110		Rotation to the limited position that stops at the end point Remarks: When stops in two directions 	limited rotation
111		Reciprocating rotation between the limited positions that stops after one round trip	limited rotation and return
112		Continuous oscillating rotary motion Remarks: In the case where the last stopping position lies beyond the returning point 	oscillating rotary motion (continuous)
113		Direction of spindle rotation Remarks 1. When an interrupted rotary motion  2. In the case of a spindle, it may be substituted for the symbol of objective spindle. 	direction of spindle rotation

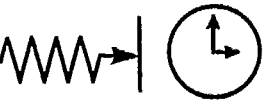
No.	Symbol	Definition	Equivalent English (Informative reference)
114		Revolution Remarks: In the case where the revolution in a continuous revolution is of a counter clockwise revolution 	revolution
115		One revolution	one revolution
116		Revolution that stops at the limited position	oriented stop
117		Number of revolutions per minute Remarks: X being the numerical value of revolutions, as the case may be, either not be used, or be arranged in a table.	number of revolutions per minute (spindle speed)

(b) Feed motions

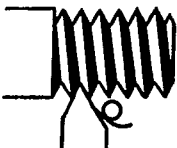
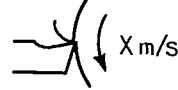
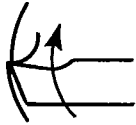
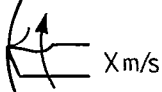
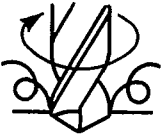
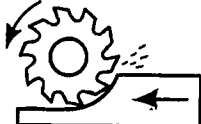
No.	Symbol	Definition	Equivalent English (Informative reference)
121		Feed	feed
122	 $X \text{ mm/rev}$	Feed per revolution Remarks: X being the numerical value of the feed, as the case may be, either not be used, or be arranged in a table.	feed per revolution
123	 $X \text{ mm/min}$	Feed per minute	feed per minute
124	 $1/X$	Low speed feed, reduced feed Remarks: $1/X$ being the ratio of reduced speed to the normal feed, it may not be used.	reduced feed
125	 $1/1$	Normal feed Remarks: $1/1$ may not be used.	normal feed
126	 $X/1$	Rapid feed, speed increasing feed Remarks: $X/1$ being the ratio of increased speed to the normal feed, it may not be used.	rapid feed
127		Longitudinal feed Remarks: When the direction of feed is indicated  when an operational object is appended 	longitudinal feed

No.	Symbol	Definition	Equivalent English (Informative reference)
128		Transverse feed Remarks: When the direction of feed is indicated  when an operational object is appended 	transverse feed
129		Vertical feed Remarks: When the direction of feed is indicated  when an operational object is appended 	vertical feed
130		Rapid traverse	rapid traverse
131		Feed per stroke Remarks: When feed is made only at one end of stroke 	feed per stroke
132		Feed per stroke mm Remarks: X being the numerical value of feed at every stroke, it may be, either not be used or be arranged in a table.	feed per stroke mm

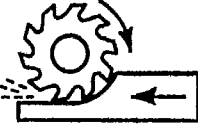
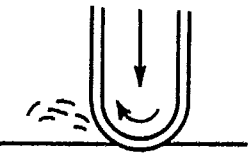
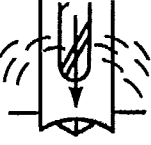
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No.	Symbol	Definition	Equivalent English (Informative reference)
133		Increase of value Remarks: In the marking of high speed range (revolution),  may also be used.	increase of value (speed, for instance)
134		Decrease of value Remarks: In the marking of low speed range (revolution),  may also be used.	decrease of value (speed, for instance)
135		Tarry	tarry
136		Dwell	dwell

(c) Cutting motions

No.	Symbol	Definition	Equivalent English (Informative reference)
151		Threading Remarks: When a left-hand thread is shown 	threading
152		Out-side turning Remarks: When a cutting speed is shown 	out-side turning
153		In-side turning Remarks 1. When a cutting speed is shown  2. When the work piece rotates 	in-side turning, boring
154		Drilling Remarks: When a cutting speed is shown 	drilling, boring
155		Up milling Remarks: When a cutting speed is shown 	up milling

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No.	Symbol	Definition	Equivalent English (Informative reference)
156		Down milling Remarks: When a cutting speed is shown  X m/s	down milling
157		Grinding, sanding or polishing Remarks 1. As required, the grindingstone may also be substituted for other simple one which is similar and nearly the same as an actual shape. 2. When a cutting speed is shown  X m/s	grinding, sanding, polishing
158		Honing Remarks: When a cutting speed is shown  X m/s	honing
159		Chain mortising Remarks: When a cutting speed is shown  X m/s	chain mortising
160		Mortising Remarks: When a cutting speed is shown  X m/s	mortising