

JIS

JAPANESE INDUSTRIAL STANDARD

Shovels and Scoops

 **JIS A 8902**—1988

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



JAPANESE INDUSTRIAL STANDARD

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Shovels and Scoops

A 8902-1988

1. Scope

This Japanese Industrial Standard specifies shovels and scoops for construction work, farming, and domestic use.

2. Classification

Shovels and scoops shall be classified by their kinds as shown in Table 1.

Table 1. Classification

Kind		Shape
Shovel	Round type No. 1	Attached Fig. 1
	Round type No. 2	Attached Fig. 1
	Square type No. 1	Attached Fig. 2
	Square type No. 2	Attached Fig. 2
	Gardening round type	Attached Fig. 3
	Gardening square type	Attached Fig. 4
	Concrete handling	Attached Fig. 5
Scoop	No. 2	Attached Fig. 6
	No. 3	Attached Fig. 6

Applicable Standards:

JIS Z 2245-Method of Rockwell and Rockwell Superficial Hardness Test

JIS Z 9003-Single Sampling Inspection Plans having Desired Operating Characteristics by Variables (Standard Deviation Known)

JIS Z 9006-Single Sampling Inspection Plans with Screening by Attributes

3. Quality

The quality of shovels and scoops shall meet the following requirements:

- (1) The scooping part shall be subjected to a suitable heat treatment, and the hardness in the area 25 to 50 mm within the blade end shall be HRC 37 to 49 for round type shovels, and HRC 30 to 45 for the other types when performed the test specified in 8.1. However, the hardness of the other types with plate thicknesses smaller than 1.4 mm shall be HRA 65.5 to 73.
- (2) Shovels of the round type No. 1, round type No. 2, square type No. 1 and square type No. 2, and scoops No. 2 and No. 3 shall be subjected to the loading test of 8.2, and in this test, breakage, loosening, or remarkable deformation shall not occur and the difference between the positions of the gripping parts before and after the test shall not exceed 25 mm.

4. Construction

Wooden shafts shall be fastened firmly to the scooping part by using rivets. Shafts made of pipe shall be firmly fastened to the scooping part by means of welding, fit-in joint, rivetting, or the like.

5. Shape and Dimensions

The shapes and dimensions shall be as shown in Attached Figs. 1 to 8 and the Attached Table.

Shafts shall be classified into circular shafts and deformed shafts based on their cross-sectional shapes. The shape of the gripping part shall be of the Y type.

6. Appearance

The appearance shall meet the following requirements:

- (1) The surface of the scooping part shall be free from cuts, cracks, and other defects which are detrimental to use.
- (2) Wooden handles shall have a smooth surface free from defects detrimental to use, such as knots, cross-grain, decay, worm-eaten spots, and bends. Handles made of pipe shall be free from defects detrimental to use, such as projections, dents, and bends.

7. Material

The material used shall be as follows:

- (1) The material of the scooping part shall be a steel plate having the chemical composition shown in Table 2 or a steel plate of equivalent or superior quality.

Table 2. Chemical Composition

Unit: %

C	Si	Mn	P	S
0.40 to 0.55	0.35 max.	0.75 max.	0.050 max.	0.050 max.



- (2) The material of the shaft shall be either wood or pipe, and wooden shafts shall be made of oak or a hard wood of equivalent quality with a water content of within 18 %. Pipe shafts shall be made of structural steel, stainless steel, aluminium, resin, or the like, or a combination of these materials.
- (3) The material of the gripping part shall be wood, structural steel, stainless steel, aluminium, resin, or a combination of these materials.

8. Tests

8.1 Hardness Test Measure the hardness of the scooping part at any three locations within 25 to 50 mm from the blade end according to JIS Z 2245 and take the average value.

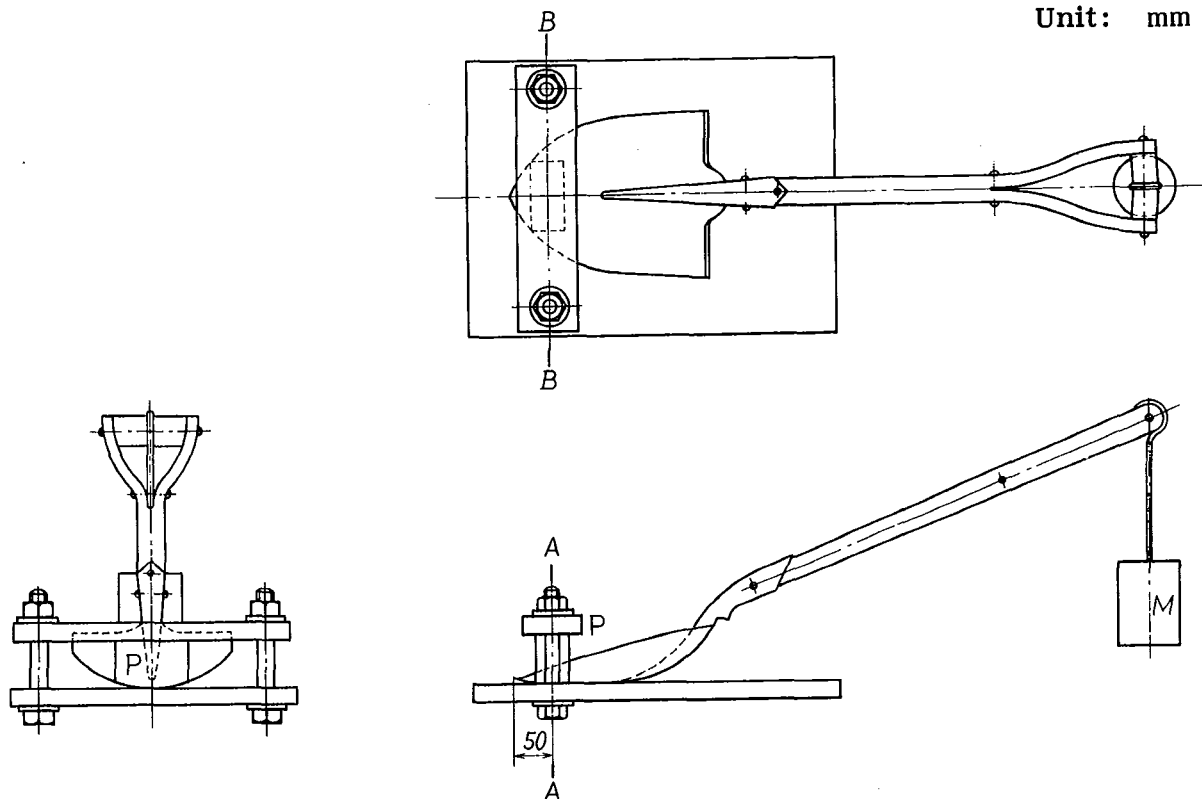
8.2 Loading Test As shown in Figure, clamp the scooping part so that the longitudinal centre line ($A-A$) of clamp P is positioned 50 mm apart from the blade end and the transverse centre line ($B-B$) is perpendicular to the centre line of the handle, and after loading the gripping part with a weight of mass M for 1 min, remove it, and examine for abnormalities such as breakage, loosening, and deformation in the scooping part and handle. Further, measure the difference (mm) between the positions of the gripping part before and after applying the weight. In this test, the value of mass M of the weight shall be as shown in Table 3.

Table 3. Mass of Weight Unit: kg

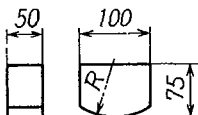
Kind	Material of shaft	Mass M
Shovel round type No. 2	Wood	60
	Pipe	80
Others	Wood	40
	Pipe	60

Figure. Loading Test

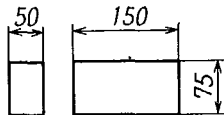
Unit: mm



Clamp (mild steel or cast iron)

For Shovel Round
Type

For Others

R shall be made equal to that of
the scooping part.

9. Inspection

9.1 Inspection Items Inspection shall be performed for the construction, shape, dimensions, appearance, hardness, and the loading test.

9.2 Construction, Shape and Appearance The inspection for the construction, shape and appearance shall be performed for all the number of products, and they shall be accepted if they meet the requirements of 4., 5. and 6.

9.3 Dimensions, Hardness and load Test For the dimensions, hardness and loading test, sampling inspection shall be performed according to the following procedures for respective different kinds of products, and the group represented by the specimen shall be accepted if they meet the requirements of 3. and 5.