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भारतीय मानक मसौदा

पावर टिलर के लिए रोटावेटर के लिए ब्लेड – विशिष्टि

(आइ एस 11905 *का पहला पुनरीक्षण*)

Draft ***Indian Standard***

SHAFT ASSEMBLY FOR ROTAVATOR FOR POWER TILLER — SPECIFICATION

(*First Revision of* IS 11905)

ICS **65.060.20**

Agricultural Machinery and Equipment Sectional Committee, FAD 11	Last date for Comments: **20 November 2024**

FOREWORD

(*Formal clause will be added later*)

Rotavator is an essential equipment attached with power tiller for both wetland and upland cultivation. The shaft assembly, is a crucial component on which blades are fitted. To ensure interchangeability in various makes of the rotavator, a need was felt to develop this standard.

The standard was published in 1986. The current revision of the standard has been undertaken to incorporate following modifications:

a) Raw material requirements have been updated as per current manufacturing practices.
b) Range of width of assembly corresponding to number of blade holders has been widened.
c) Necessary editorial changes have been made including updating of referred Indian Standards and schematic diagrams given in the standard

The power to rotary shaft can be transferred either from one of two ends or from the centre through chain and sprocket. Considering the present mode of transmission in most of the indigenously manufactured power tillers, the essential dimensions have been provided only for the rotary shaft having power transmission at the ends.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values ‘(*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Draft ***Indian Standard***

SHAFT ASSEMBLY FOR ROTAVATOR FOR POWER TILLER — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard specifies material, dimensions and other requirements of shaft assembly for rotavator attached to the power tiller.

2 REFERENCES

The Indian Standards listed below contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated there.

IS No.	*Title*
IS 7201 (Part 1) : 1987	Methods of sampling for agricultural machinery and equipment : Part 1 Hand-tools and hand-operated / animal drawn equipment (*first revision*)
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (*seventh revision*)
IS 1570 (Part 2/Sec 1) : 1979	Schedules for wrought steels: Part 2 Carbon steels (unalloyed steels): Sec 1 Wrought products (other than wires) with specified chemical composition and related properties (*first revision*)
IS 1570 (Part 4) : 1988	Schedules for wrought steels: Part 4 alloy steels (Alloy Constructional And Spring Steels) with specified chemical composition andd mechanical properties (First Revision)
IS 3601 : 2006	Steel tubes for mechanical and general engineering purposes — Specification (*second revision*)
IS 1586 (Part 1) : 2018/ISO 6508-1 : 2016	Metallic materials — Rockwell hardness test: Part 1 Test method (*fifth revision*)

3 MATERIAL

The material for various components of the assembly shall be as given in Table 1. The material should conform to the relevant Indian Standard and grade given in col 4 and 5 of Table 1 respectively.

Table 1 Material for Shaft Assembly

(*Clause* 2.1)

Sl. No.	Component	Material	Applicable IS	Grade
(1)	(2)	(3)	(4)	(5)
i.	Blade holder	Mild Steel	IS 2062	-

ii.	Rotary shaft	Carbon Steel Alloy Steel	IS 1570 (Part 2/ Sec 1) IS 1570 (Part 4)	40 C8 or 45 C8 20Mn5Cr5 or 16Mn5Cr5 or SAE 8620
iii.	Rotary pipe	Seamless tube	IS 3601	-
		Electric Welded Resistance (ERW) Tube	IS 3601	-

4 HARDNESS

4.1 The hardened portion (*see* A in Fig. 1) shall be minimum of 20 mm at the middle portion of splines and shall have a minimum hardness of 37 HRC measured as per IS 1586 (Part 1).

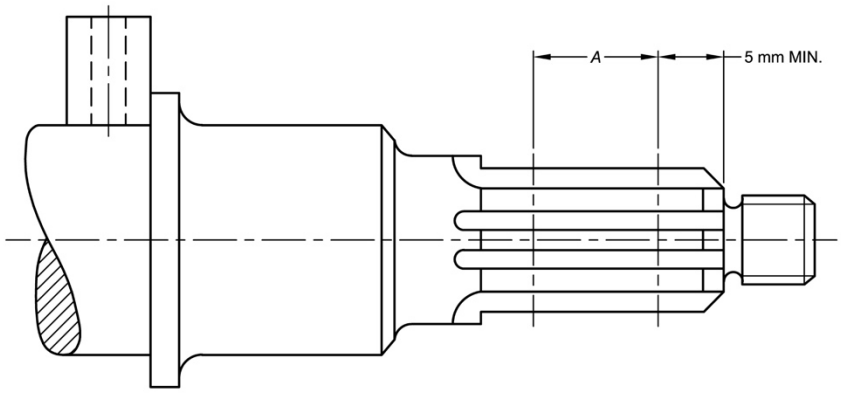


FIG. 1 ROTARY SHAFT

5 DIMENSIONS

5.1 The outer diameter of the pipe used in the assembly shall be of minimum 44 mm.

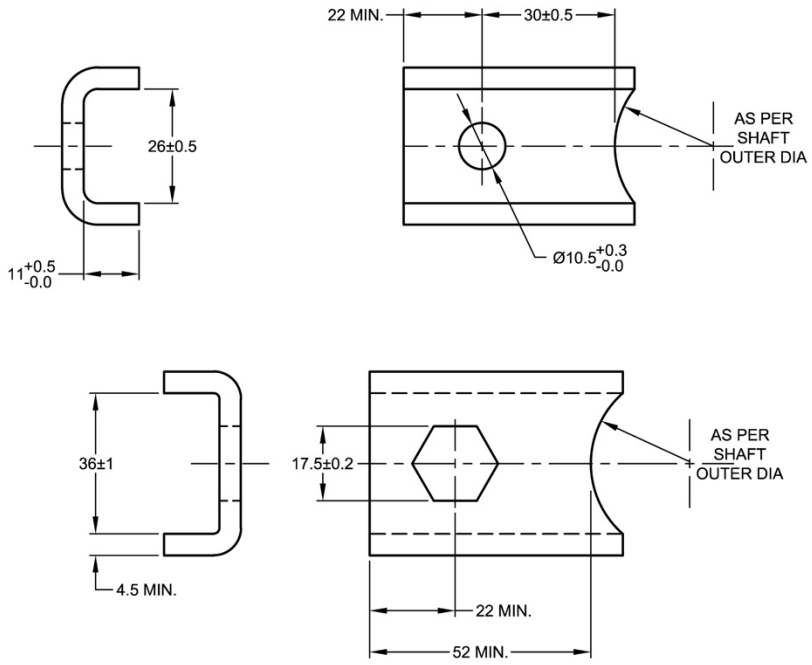
5.2 The dimensions of the blade holder shall be as given in Fig. 2.

5.3 The number of the blade holders and corresponding width of the assembly shall be as given in Table 2.

6 OTHER REQUIREMENTS

6.1 The shaft should not come out of the pipe.

6.2 The blade holders (*see* 1 and 2 in Fig. 3) shall be welded along with the full length.



All dimensions in millimetres

FIG. 2 DIMENSIONAL DETAILS OF BLADE HOLDER

Table 2 Number of Blade Holders and Width

(*Clause* 4.3)

Sl. No.	No. of the Blade Holder	Width of Assembly, mm
(1)	(2)	(3)
i.	10	300
ii.	16	500
iii.	18	540
iv.	20	600
v.	26	750

6.3 The blade holder shall be welded with the blade shaft at the specified distance and angular position with respect to the shaft.

6.4 The bolt for fixing blade with the blade holder shall be of size min M 10 fine pitch.

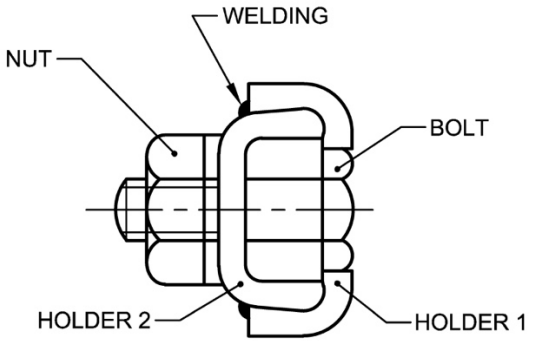


FIG. 3 BLADE HOLDER ASSEMBLY

7 WORKMANSHIP AND FINISH

7.1 The rotary shaft shall be free from cracks, scams and other visual defects which may be detrimental in use.

7.2 The rotary shaft shall be free from rust and shall have a protective coating which will prevent surface deterioration in transit and storage.

8 MARKING AND PACKING

8.1 Marking

Each rotary shaft shall be marked with the following particulars:

a) Manufacturer's name or recognized trade mark; and
b) Batch or code number.

8.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

8.3 Packing

The rotary shaft shall be packed for safe handling in transit as agreed to between the purchaser and supplier.

9 SAMPLING FOR LOT ACCEPTANCE

9.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling of the rotary shaft for lot acceptance shall be done in accordance with **3** of IS 7201 (Part 1).