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भारतीय मानक मसौदा

पावर टिलर के लिए हैंडल ग्रिप – विशिष्टि

(*आइ एस 11858 का पहला पुनरीक्षण*)

Draft ***Indian Standard***

HANDLE GRIP FOR POWER TILLER — SPECIFICATION

(*First Revision of IS 11858*)

ICS 65.060.10

Agricultural Machinery and Equipment Sectional Committee, FAD 11	Last date for Comments: **18 November 2024**

FOREWORD

(*Formal clause will be added later*)

Handle grip of the power tiller is a component which comes in contact with the operator's grip. To facilitate interchangeability of the grip in various makes of the power tiller, this standard was formulated. The standard was published in 1986.

The first revision of the standard has been undertaken to incorporate necessary editorial changes and to bring it out in the latest style and format of Indian Standards. References to Indian Standards wherever applicable have also been updated.

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***

HANDLE GRIP FOR POWER TILLER — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard specifies material, dimensions and other requirements of handle grip for 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 3400 (Part 1) : 2021/ISO 37 : 2017	Methods of test for vulcanized rubber: Part 1 Tensile stress-strain properties
IS 3400 (Part 4) : 2012/ISO 188 : 2011	Methods of test for vulcanized rubber: Part 4 Accelerated ageing and heat resistance (*third revision*)
IS 3400 (Part 13) : 2021/ISO 2285 :2013	Methods of test for vulcanized rubbers: Part 13 Tension set (*second revision*)

3 MATERIAL

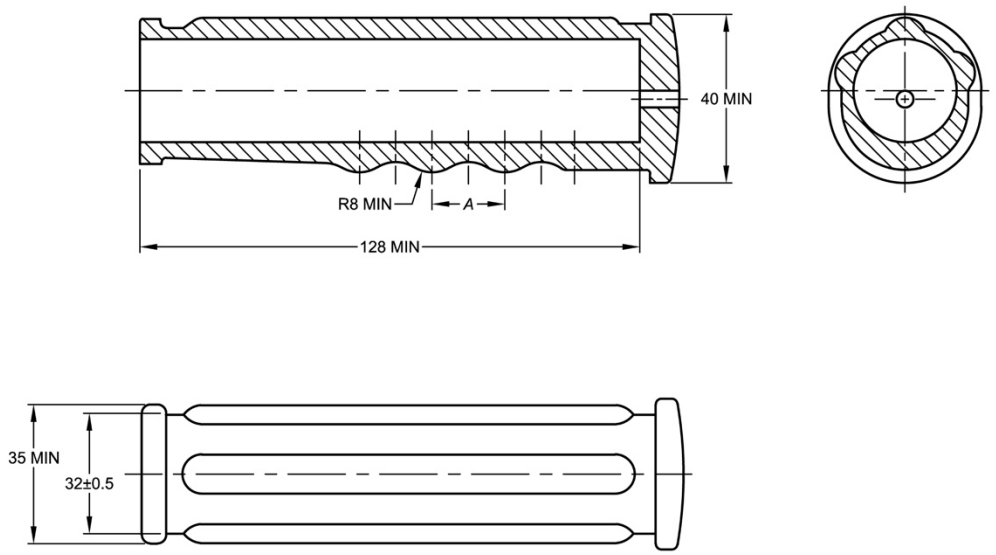
The grip shall be made of synthetic rubber or a combination of synthetic and natural rubber, compounded and vulcanized. It shall not contain any reclaimed or vulcanized waste.

4 DIMENSIONS

4The dimensions of the grip shall be as given in Fig.1.

5 PHYSICAL REQUIREMENTS

5.1 The rubber used for grip shall conform to the requirements given in Table 1.



All dimensions in millimetres

FIG.1 HANDLE GRIP

5.2 Tubing cut from the grip when subjected to the test prescribed under **7.4** shall not show any sign of cracking or other evidence of failure of the stretched part.

6 OTHER REQUIREMENTS

6.1 The colour and design on the surface of the grip shall be as agreed to between the purchaser and the supplier.

6.2 Minimum three longitudinal projections shall be provided for proper gripping.

6.3 Circular grooves, four in number, shall be provided at a minimum pitch of 19 mm (*see* 'A' in Fig.1) for proper finger grip.

6.4 The grip shall be homogeneous in composition, shall be adequately vulcanized, evenly and smoothly finished on inner tubing. The composition shall be free from irritants and have no known injurious effect on person with whom it may come in contact.

Table 1 Physical Requirements of Rubber Used for Handle Grip
(*Clause* 4.1)

Sl. No.	**Characteristics**	**Value Before Aging**	**Maximum Change from the Original Value After Accelerated ageing at 70 ± 1°C for 168 hours' in air oven**
(1)	(2)	(3)	(4)
i.	Tensile strength, MN/m^2, *Min*	10.0	+ 10 percent - 25 percent
ii.	Elongation at break, percent, *Min*	400	+ 0 percent - 25 percent
iii.	Percent elongation under a tensile	Between 100 & 250	-

	stress of 2800 kN/m^2 of original area of cross section of test piece		
iv.	Tension set (at 200 percent elongation), percent, *Max*	10	-
v.	pH of water extract	7 ± 0.5	-
vi.	Extractable colour	No colour or Precipitation shall formed but faint turbidity (to the extent of slight translucence) may be permitted	-

6.5 The grip shall be free from pin-holes, pits, cracks, crevices, grooves and other defects.

7 TEST METHODS

7.1 Unless otherwise agreed to between the purchaser and the supplier, all tests shall be carried out within 3 months of the date of receipt of the material by the purchaser.

7.2 Test Pieces — It is not possible to carry out conveniently some of the tests on the grip itself. In such cases, tests shall be carried out on press cured slabs made from the same mix and vulcanized as closely as possible to the same degree as the grip. The number of slabs to be provided with the lot shall be as agreed to between the purchaser and the supplier.

7.3 Physical Properties

7.3.1 *Tensile Strength and Elongation at Break* — Carry out the test on dumb-bell test pieces cut out of press cured slabs in accordance with the method prescribed in IS 3400 (Part 1).

7.3.2 *Accelerated Ageing* — Subject dumb-bell test pieces to ageing at 70 ± 1°C for 168 hours in an air-oven or a cell oven in accordance with the method prescribed in IS 3400 (Part 4) and test it according to **7.3.1**.

7.3.3 *Elongation Under a Fixed Tensile Stress* —This test shall be carried out as indicated in **7.3.1** on the grip tubing itself and the percentage elongation is measured when a tensile stress of 2 800 kN/m^2 of the original area of cross-section of test piece has been applied.

7.3.4 *Tension Set* — This test shall be carried out on the grip tubing in accordance with IS 3400 (Part 13).

7.3.5 *pH of Water Extract* — This test shall be carried out in accordance with Annex A.

7.3.6 *Extractable Colour* — Carry out this test in accordance with Annex B.

7.4 *Resistance to Ageing Under Tension* — The cut end of a piece of tubing of the grip shall be fitted over a glass tube of external diameter 40 to 50 percent greater than the internal diameter of the rubber tubing and the hole subjected to accelerated ageing for 168 hours at 70 ± 1°C as prescribed in **7.3.2**.

8 MARKING AND PACKING

8.1 Marking

Each grip shall be legibly marked with the manufacturer's name and/or recognized trade-mark, 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 grip shall be packed as agreed to between the purchaser and the supplier.

9 SAMPLING FOR LOT ACCEPTANCE

9.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling of the grip for lot acceptance shall be done in accordance with **3** of IS 7201.

ANNEX A
(*Clause* 7.3.5)
DETERMINATION OF pH OF WATER EXTRACT

A-l PROCEDURE

A-l.1 Cut 5 grips into 2 mm pieces. Autoclave the pieces for 5 minutes at a pressure of 40 to 50 kN/m2 with 200 ml of water. Discard the first extract and repeat the process with another 501 ml of water for 40 minutes. Decant the extract, cool and determine the pH with a meter.

ANNEX B
(*Clause* 7.3.6)
TEST FOR EXTRACTABLE COLOUR

B-l PROCEDURE

B-l.1 Cut 5 grips into 10 mm pieces and mix them. Weigh about 20 g of these pieces. Autoclaved them with 100 ml of water under a steam pressure of 100 to 135 kN/m2 at a temperature of 120 to 125 °C for 33 minutes. Cool and examine the extracted solution.