

Indian Standard
SPECIFICATION FOR EARTH AUGERS
(SPIRAL TYPE)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR EARTH AUGERS (SPIRAL TYPE)

Soil Engineering and Rock Mechanics Sectional Committee, BDC 23

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0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 January 1983, after the draft finalized by the Soil Engineering and Rock Mechanics Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 A series of standards on methods of testing of soils have been published by the Institution. It has been recognised that reliable and inter-comparable test results can be obtained only with the standard testing equipment capable of giving that desired level of accuracy. The Sectional Committee has, therefore, decided to bring out a series of specifications covering the requirements of equipment used for testing soils to encourage its development and manufacture in the country.

0.3 The equipment covered in this standard is used for piling work, soil boring and sampling works.

0.4 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:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers dimensional and general requirements for earth augers (spiral type), used in piling, soil boring and sampling works.

2. SIZES, DIMENSIONS AND TOLERANCES

2.1 These shall be as given in Table 1, read with Fig. 1. The nominal size refers to the diameter bored by augers.

*Rules for rounding off numerical values (*revised*).

3. MATERIALS

3.0 The material for construction of various parts shall be as under.

3.1 **Pilot Bit** — It shall conform to steel conforming to designation T 90 of Schedule VI of IS:1570-1961* with a maximum sulphur and phosphorus content of 0.05 percent each.

3.2 **Blades** — It shall conform to steel conforming to designation T 90 of Schedule VI of IS:1570-1961* with a maximum sulphur and phosphorus content of 0.05 percent each.

3.3 **Base Plate** — It shall be made of mild steel conforming to IS:513-1973†.

3.4 **Spirals** — It shall be made of mild steel conforming to IS:513-1973†.

3.5 **Pipe Shaft** — It shall be made of mild steel of heavy grade as specified in IS:1239 (Part I)-1979‡.

3.6 **Couplers** — It shall be made of mild steel conforming to IS:513-1973† hardened and tempered to produce a hardness reading within range 360 to 420 HV 10 (see IS:1501-1968§).

3.7 **Extension Rods** — It shall be made of mild steel of heavy grade as specified in IS:1239 (Part I)-1979‡.

3.8 **Handles and Extension to Handles** — It shall be made of mild steel of heavy grade conforming to IS:1239 (Part I)-1979‡.

4. CONSTRUCTION

4.1 The blade shall be either plain or toothed (see Fig. 1). The edges of the blade shall be backed with non-erodable welding so as to have hardness 600 to 700 HV 10 (see IS:1501-1968§). The pilot bit, blades, spirals and coupler shall be welded to the shaft. The plate coupler shall be of size $100 \times 75 \times 8$ mm except for auger sizes 550 and 600, it shall be $125 \times 100 \times 8$ mm.

5. PERFORMANCE TEST

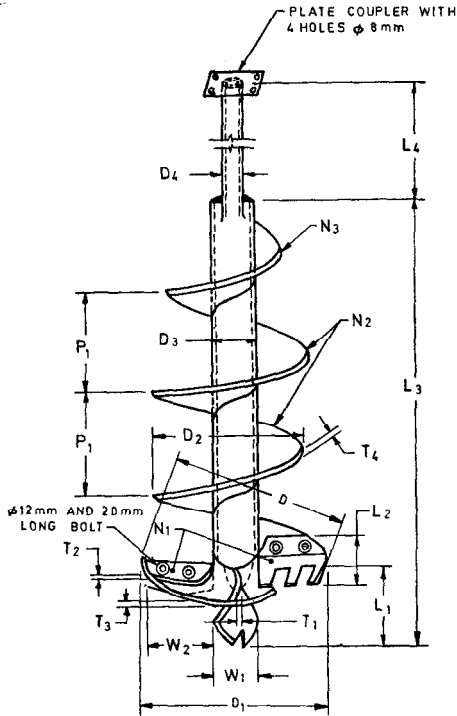
5.1 The auger shall bore satisfactory a minium depth of spiral length in a fairly consolidated soil. The auger shall not be withdrawn during the test but shall withdraw easily after it reaches to the required depth. At the end of the test, the auger shall show no sign of damage, fracture or flaw.

*Schedules for wrought steels for general engineering purposes.

†Specification for cold rolled carbon steel sheets (*second revision*).

‡Specification for mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (*fourth revision*).

§Methods for victors hardness test for steel (*first revision*).



NOTE — The angle of taper for blades shall be $30 \pm 5^\circ$.

FIG. 1 EARTH AUGER (SPIRAL TYPE)

6. WORKMANSHIP

6.1 The blades and pilot bits shall be free from cracks, seams, etc.

7. TREATMENT

7.1 The auger shall be coated with one coat of red oxide or anti-corrosive paint and finally painted with blue enamel paint.

8. MARKING

8.1 The following information shall be clearly and indelibly marked on each auger:

- a) Name of the manufacturer or his registered trade-mark or both,
- b) Type (See 4.1), and
- c) Date of manufacture.

8.1.1 The auger may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

TABLE 1 SIZES, DIMENSIONS AND TOLERANCES OF AUGER

(Clause 2.1)

NOMINAL SIZE	PILOT BITS			BLADES				BASE PLATE		SPIRALS					SHAFT			
	$L_1 \pm 0.3$	$W_1 \pm 0.3$	$T_1 \pm 1$	$L_2 \pm 0.3$	$W_2 \pm 0.3$	$T_2 \pm 1$	N_1	$D_1 \pm 0.4$	$T_3 \pm 1$	$D_2 \pm 0.4$	$T_4 \pm 0.5$	P_1	N_2	N_3	$L_3 \pm 5$	$D_3 \pm 0.3$	$L_4 \pm 5$	$D_4 \pm 0.5$
D (1) mm	(2) mm	(3) mm	(4) mm	(5) mm	(6) mm	(7) mm	(8) Nos	(9) mm	(10) mm	(11) mm	(12) mm	(13) mm	(14) Nos	(15) Nos	(16) mm	(17) mm	(18) mm	(19) mm
100	60	25	6	50	40.0	6	1	90	8	85	3	85±5	3	1	250	26.9	750	26.9
150	90	40	6	85	57.5	6	1	140	8	135	3	85±5	3	1	300	33.8	700	33.8
200	115	50	8	115	77.5	8	1	185	8	150	3	110±5	3	1	400	42.5	600	42.5
250	115	50	8	115	102.5	8	1	235	8	230	3	110±5	3	1	400	42.5	600	42.5
300	115	50	8	125	127.5	8	1	285	8	280	3	110±5	3	1	400	42.5	600	42.5
375	150	100	12	150	147.5	10	2	360	10	350	4	165±10	2	1	550	76	450	42.5
400	150	100	12	150	160.0	10	2	385	10	375	4	165±10	2	1	550	76	450	42.5
450	150	100	12	150	185.0	10	2	435	12	425	4	165±10	2	1	550	76	450	48.4
500	150	100	12	150	210.0	10	2	485	12	475	4	165±10	2	1	550	76	450	48.4
550	150	100	12	150	235	10	2	535	12	520	4	200±10	2	1	650	88.7	350	60.2
600	150	100	12	150	260	10	2	585	12	570	4	200±10	2	1	650	88.7	350	60.2

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