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भारतीय मानक मसौदा

मुख्यतः कोयले में वेधन करने हेतु घूर्णी वेध बिट्स — विशिष्टि

(आई एस 8166 का दूसरा पुनरीक्षण)

Draft Indian Standard

**ROTARY DRILL BITS FOR DRILLING PRINCIPALLY
IN COAL — SPECIFICATION**

(Second Revision of IS 8166)

ICS 73.020

**Mining Techniques and Equipment
Sectional Committee, MED 08**

**Last date for receipt of
comments is 11 March 2023**

FOREWORD

(Formal clause to be added later)

This standard was first published in 1976 and then subsequently revised in 1988. This standard is being revised again to keep pace with the latest technological developments and international practices. In this revision, the following major changes have been made:

1. A reference clause has been added mentioning the latest version of all the referred standards.
2. Editorial corrections have been done.

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.

1 SCOPE

Covers the requirements for rotary drill bits used for drilling holes. The tools are principally for use in coal but are applicable to other materials having appropriate driving characteristics.

1.1 This standard also covers the pilot and reamer bits for drilling large diameter holes.

2 REFERENCES

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

<i>IS No.</i>	<i>Title</i>
4005 : 1967	Specification for tungsten carbide for mining tools

3 TYPES

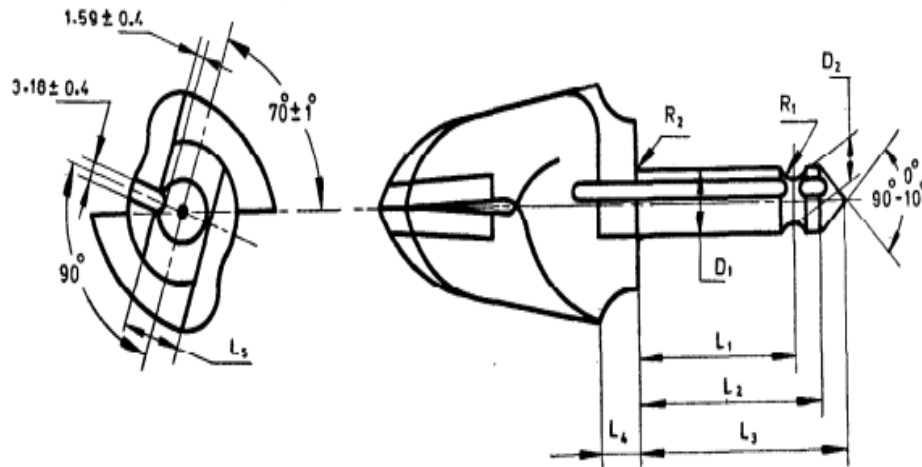
- a) **Type A** — One piece bits; and
- b) **Type B** — Two piece bits consisting of pilot and reamer bits.

4 NOMINAL SIZES

Type A	Type B	
	Pilot	Reamer
35	35	63
38	43	75
43	-	-
52	-	-

5 DIMENSIONS

5.1 Shanks

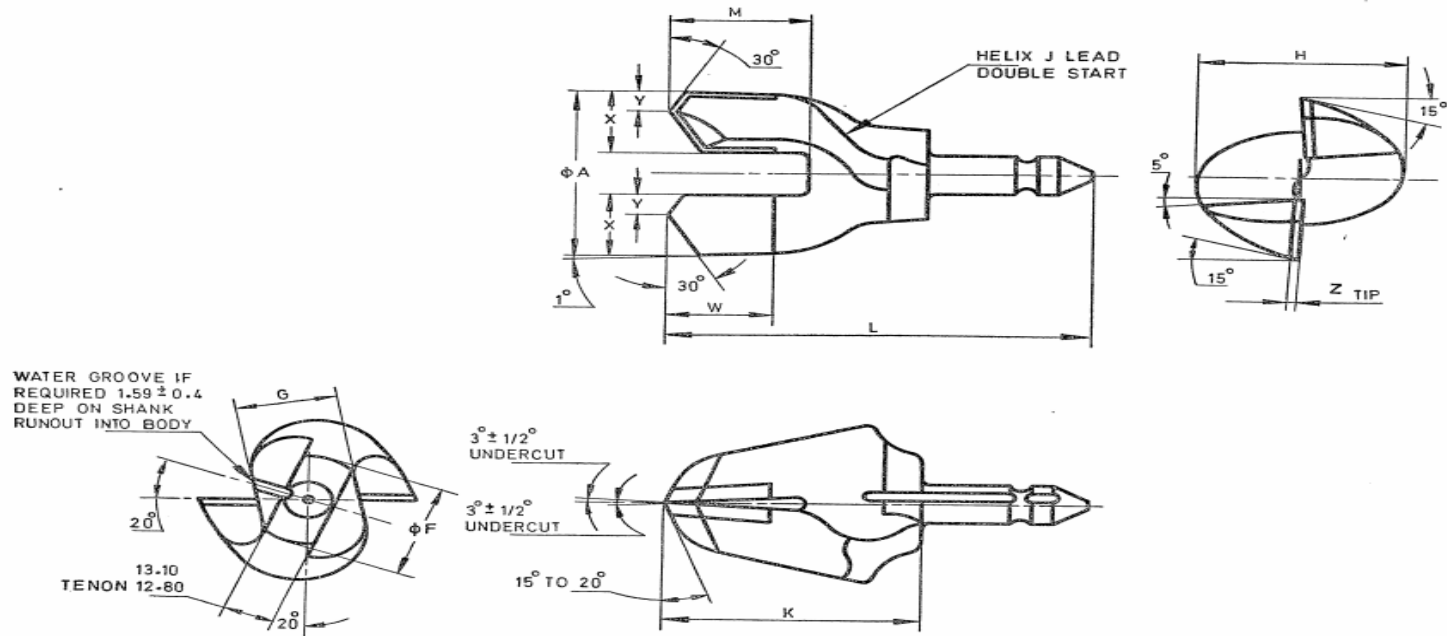


All dimensions in millimetres.

Type of Bit	D_1 0 -0.10	D_3 0 -0.25	L_1 +0.15 0	L_2 ± 0.4	L_3 Max	L_4 ± 0.3	L_5 0 -0.33	R_1 ± 0.13	R_2 Max
A	12.7	8.6	23	29.9	39.3	9.7	13.1	3.2	0.3
B	12.7	8.6	40.5	47.4	57.2	9.7	13.1	3.2	0.3

5.2 Body

5.2.1 Type A Bits and Pilot Bits for Type B Bits

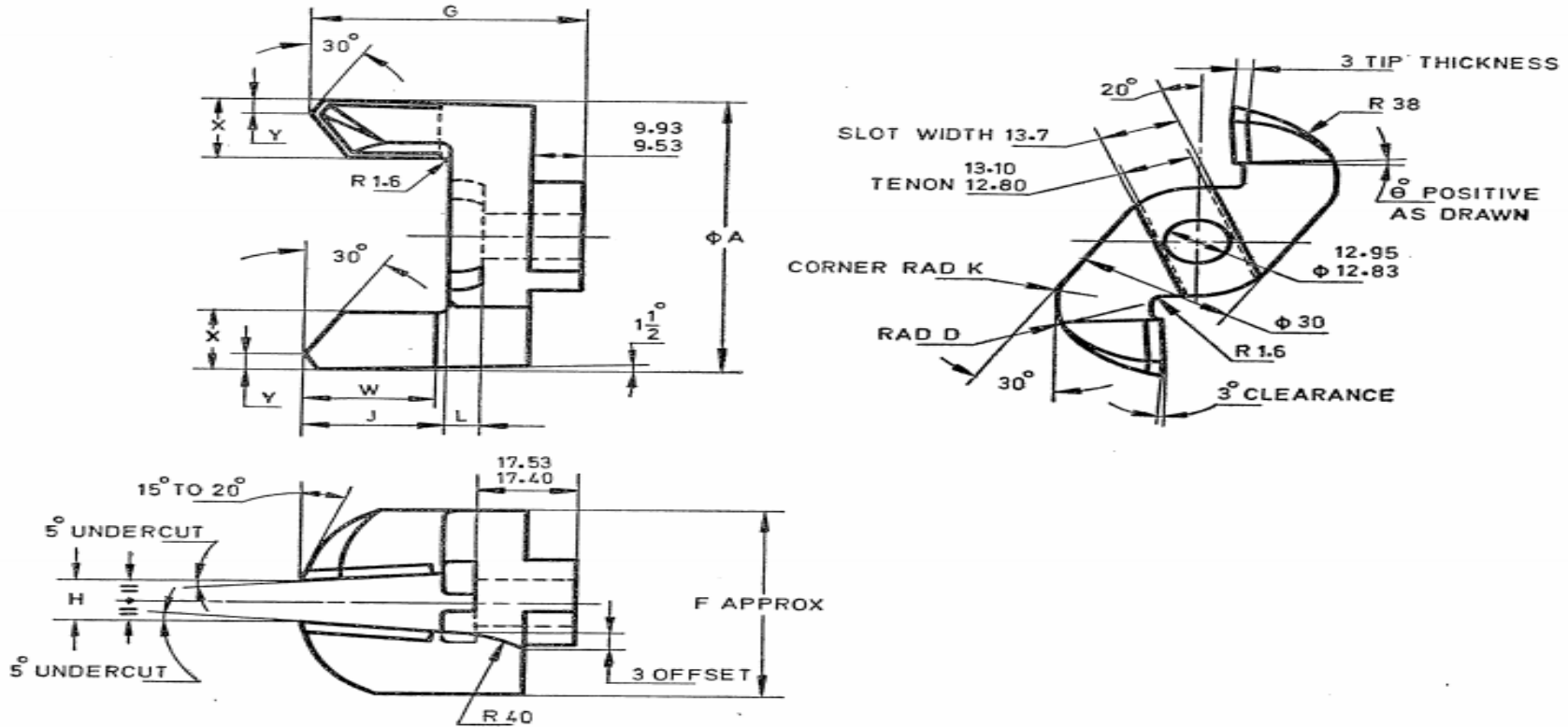


All dimensions in millimetres.

Nominal Size	Cutting Dia A +0.76 0	Tip Width X	Tip Chamfer Y	Tip Height W	Tip Thickness Z Min	Tenon Dia. F	Body Width G	Core Width H	Lead J	Body length K	Overall Length L		Gap Height M
											Type A	Type B	
35	35	14	4	19	3	20	22	32	64	52	91.3	109.2	24
38	38	14	4	19	3	21	19	32	76	52	91.3	—	27
43	43	16	4	24	3	22	22	40	76	56	95.3	113.2	30
52	52	19	6	25	4	29	24	49	127	60	99.3	—	32

January 2023

5.2.2 Reamer bits for Type B bits



All dimensions in millimetres.

Nominal Size	Cutting Dia. A +0.51 0	Tip width X	Tip Chamfer Y	Heal Radius D	Tip Length W	Bit width F	Bit Height G	Gap Width H	Gas Height J	Corner Radius K	Slot Depth L	Clearance Angle θ
63	63	14	4	10	19	48	51	9	25	3	9	15° NEG
75	75	16	4	16	24	51	51	11	25	6	6	3° POS

6 MATERIAL

- a) Shank and body — High tensile steel with 0.55 percent carbon, *Min.*
- b) Tips — Tungsten carbide conforming to IS 4005 Grade used shall be at the option of the purchaser.

7 DESIGNATION

A rotary drill bit of Type A, nominal size 38 and having tip of H grade of tungsten carbide shall be designated as:

Rotary Drill Bit A38H

8 HARDNESS

210 *HV*, *Min* for bit bodies.

9 GENERAL REQUIREMENTS

9.1 The bit body shall allow an unrestricted flow of cuttings away from the bit when the latter is fitted into the rod.

9.1.1 The attachment of the bit to the drill rod shall be streamlined to give unobstructed flow of the cuttings.

9.2 The tips shall be firmly brazed to the body of the bits.

9.3 Rotary drill bits shall be supplied with or without water grooves as specified by the purchaser.

9.4 Rotary drill bit shall have rake angle normally of $+3^\circ$. However, if required by the purchaser, rotary drill bit with 0 to -4° rake angle may be supplied.

10 IDENTIFICATION

Except for the shank, the bits shall be painted with the colour appropriate to the grade of tungsten carbide used in the manufacture of the tip (*see* IS 4005).

11 MARKING

Each rotary drill bit shall be marked on the driving flats with the following:

- a) Manufacturer's name or trade-mark;
- b) Letter H, M, T or XT to identify the grade of tungsten carbide; and
- c) Nominal Size.

11.1 BIS Certification Marking.

The drill bits may also be marked with the Standard Mark.

11.1.1 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.