

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

**डाउन-द-होल (डीटीएच) बिट्स के उपयोग हेतु टंग्स्टेन कार्बाइड बटन
और निविष्टि — विशिष्टि**

(आई एस 11672 का पहला पुनरीक्षण)

DRAFT Indian Standard

**Tungsten Carbide Buttons and Inserts for Use in Down-The-Hole
(DTH) Bits — Specification**

(First Revision of IS 11672)

ICS 25.080.40

Diamond Core and Waterwell Drilling Sectional
Committee, MED 21

Last date for receipt of comments
is **19 October 2024**

FOREWORD

(Formal clause will be added later)

This standard was first published in 1986. In this revision, the standard has been brought into the latest style and format of Indian Standards, and references of Indian Standards, wherever applicable have been updated. The following major modification has been incorporated in this revision of the standard:

- a) Button drawing and dimensions have been modified in Table 1.

This standard outline the requirements for tungsten carbide buttons and inserts used in Down-The-Hole (DTH) drilling bits. Tungsten carbide, known for its exceptional hardness and wear resistance, is a critical material in the production of buttons and inserts that endure high-impact drilling operations. These components are vital for achieving efficiency and durability in various drilling applications, including mining, construction, and oil exploration.

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

**TUNGSTEN CARBIDE BUTTONS AND INSERTS FOR USE IN DOWN-THE-HOLE
(DTH) BITS — SPECIFICATION**

(*First Revision of IS 11672*)

1 SCOPE

This Indian Standard covers the requirements for tungsten carbide buttons and inserts used in the manufacture of drilling bits for down-the-hole (DTH) drilling method.

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 agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

<i>IS No.</i>	<i>Title</i>
IS 4005 : 1967	Specification for tungsten carbide for mining tools
IS/ISO 18758-1 : 2018	Mining and earth-moving machinery — Rock drill rigs and rock reinforcement rigs Part 1 Vocabulary

3 TERMINOLOGY

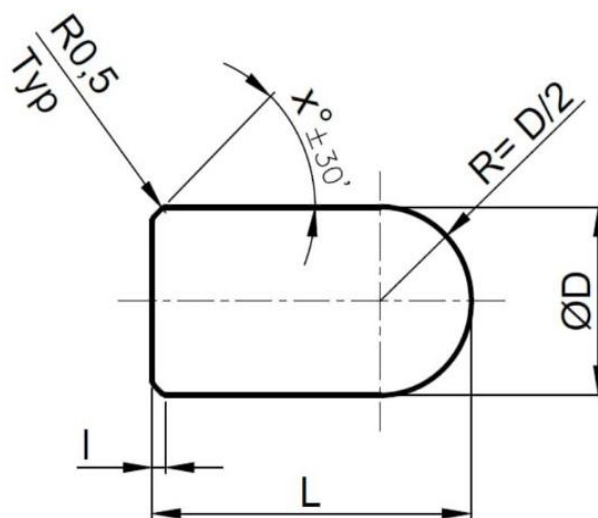
For the purpose of this standard, the definitions given in IS/ISO 18758-1 shall apply.

4 DIMENSIONS

4.1 Buttons (*See Table 1*)

Table 1 Button Drawing and Dimensions

(*Clause 4.1*)



All dimensions are in millimetres.

Sl No.	Parameter	Symbol	Range	Unit of Measurement	Tolerance
(1)	(2)	(3)	(4)	(5)	(6)
i)	Diameter	D	10 to 20	mm	+ 0.7 + 0.3
ii)	Length	L	15 to 32	mm	+ 0.3 0
iii)	Chamfer Length	l	1.5 to 2.5	mm	+0.2 0
iv)	Angle	X	15 to 45	degree	$\pm 30'$

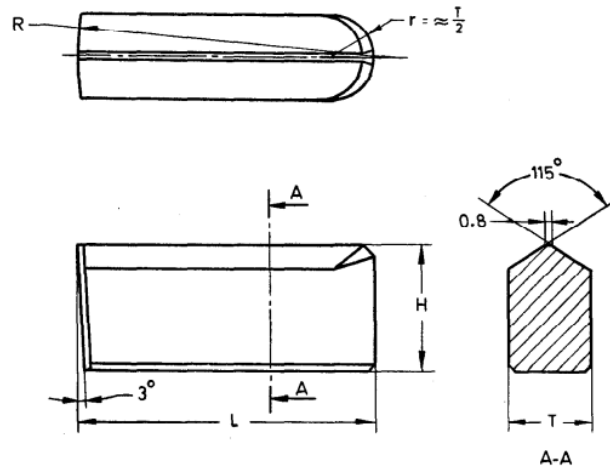
NOTES

- 1 Buttons shall be ground within total indicative reading of 10 μ m.
- 2 Minimum button length shall be $L_{\min} = 1.5 \times D$.
- 3 Button bottom profile can be modified as per the agreement between manufacturer and purchaser.

4.2 Inserts (See Table 2)

Table 2 Tungsten Carbide Inserts Drawing

(Clause 4.2)



All dimensions are in millimetres.

Sl No.	L		H		T	R
	Nominal	Tolerance	Nominal	Tolerance		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)		+ 0.5		+ 0.2	+0.6 +0.2	
ii)	45	0	19	- 0.3	12.7	51
iii)		+ 0.5		+ 0.2		
iv)	48	0	19	- 0.3	12.7	58
v)	58	+ 0.8	47	+ 0.2	25	76

vi)	0	- 0.4
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5 MATERIAL

The material shall conform to IS 4005. Depending upon the usage the grade of material used shall be subject to agreement between the purchaser and the manufacturer.

6 DESIGNATION

A button made of T Grade tungsten carbide (*see* IS 4005) having nominal diameter $D = 12$ mm and nominal length $L = 25$ mm conforming to this standard shall be designated as:

Button T12 × 25 IS 11672

7 PACKING

The buttons shall be packed in containers. Each container shall hold 10 buttons for diameters ranging from 10 mm to 15 mm, or 5 buttons for diameters above 15 mm. Inserts shall also be packed in containers.

8 MARKING

8.1 Each button/insert shall be marked with manufacturer's identification mark, grade of tungsten carbide, diameter, and length of the button/insert on its diameter/thickness.

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.