

Specification for Hole-saws

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Committees responsible for this British Standard

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British Hacksaw and Bandsaw Manufacturer’s Association
Gauge and Tool Maker’s Association

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Contents

	Page
Foreword	ii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Hole-saw types	2
5 Design	3
6 Hole-saw arbors	9
7 Hole-saw accessories	12
8 Marking	17
9 Instructions for use	17
Figure 1 — Pitch and depth	2
Figure 2 — Toothed hole-saw (typical construction)	2
Figure 3 — Hole-saw type I	5
Figure 4 — Hole-saw type II	6
Figure 5 — Hole-saw type III	7
Figure 6 — Hole-saw type IV	8
Figure 7 — Hole-saw arbor type I	10
Figure 8 — Hole-saw arbor type II	10
Figure 9 — Hole-saw arbor type III	11
Figure 10 — Pilot drill for use with arbor type I	12
Figure 11 — Pilot drill for use with arbor type I (tipped)	13
Figure 12 — Pilot drill for use with arbor type II and III	13
Figure 13 — Pilot drill for use with arbor type II and III (tipped)	14
Figure 14 — Arbor extension	15
Figure 15 — Morse taper adapter	16
Table 1 — Standard hole-saw sizes	4
Table 2 — Tolerances for hole-saw concentricity	9
Table 3 — Hole-saw arbor dimensions	9

Foreword

This British Standard has been prepared under the direction of BSI Technical committee MTE/20, Power Driven Saws. The committee is not aware of any international work on this subject and no existing standards are replaced.

This British Standard does not purport to include all the necessary provisions required for a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages 1 to 17 and a back cover.

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1 Scope

This British Standard specifies design, dimensions and tolerances for hole-saws up to 152 mm diameter. The following types of hole-saws are specified:

- a) toothed hole-saws;
- b) tipped-toothed hole-saws;
- c) abrasive grit-edged hole-saws.

This British Standard also includes dimensions of hole-saw driving arbors and other accessories.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1580, *Specification for unified screw threads*.

BS 1660-1, *Machine tapers — Specification for shanks and sockets with self-holding tapers (Morse and metric 5 %)*.

BS EN ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*.

BS EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*.

BS 328-1, *Drills and reamers — Specification for twist drills*.

3 Terms and definitions

For the purposes of this British Standard the following definitions apply.

3.1

hole-saw

cylindrical tool used to cut a circular hole through sheet material

NOTE Hole-saws are not intended to cut blind holes.

3.2

cutting edge

toothed or gritted edge of the hole-saw

3.3

body

part of the hole-saw between the cutting edge and the cap

3.4 cap

closure at the non-cutting end of the body

3.5

teeth

serrations formed across the thickness of the hole-saw to provide cutting edges

NOTE Teeth are “set” to cut wider than the body thickness.

3.6

body thickness

thickness of the material used to form the body

3.7

tooth pitch

distance between the apices of adjacent teeth (in millimetres)

NOTE See Figure 1.

3.8 tooth depth

distance from the point of a tooth to the bottom of the root radius

NOTE See Figure 1.

3.9 Cutting plane

plane perpendicular to the axis of the hole-saw at the point on the cutting edge furthest from the cap

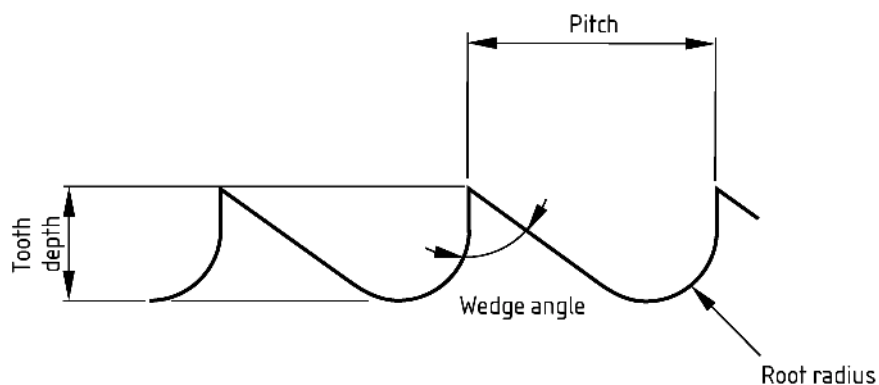


Figure 1 — Pitch and depth

4 Hole-saw types

4.1 Toothed hole-saws

Toothed hole-saws shall have teeth formed in a material suitable for their intended use.

NOTE Toothed hole-saws typically have a composite “bi-metal” construction consisting of an alloy steel main body with a narrow high-speed steel edging strip, in which the teeth are formed (see Figure 2).

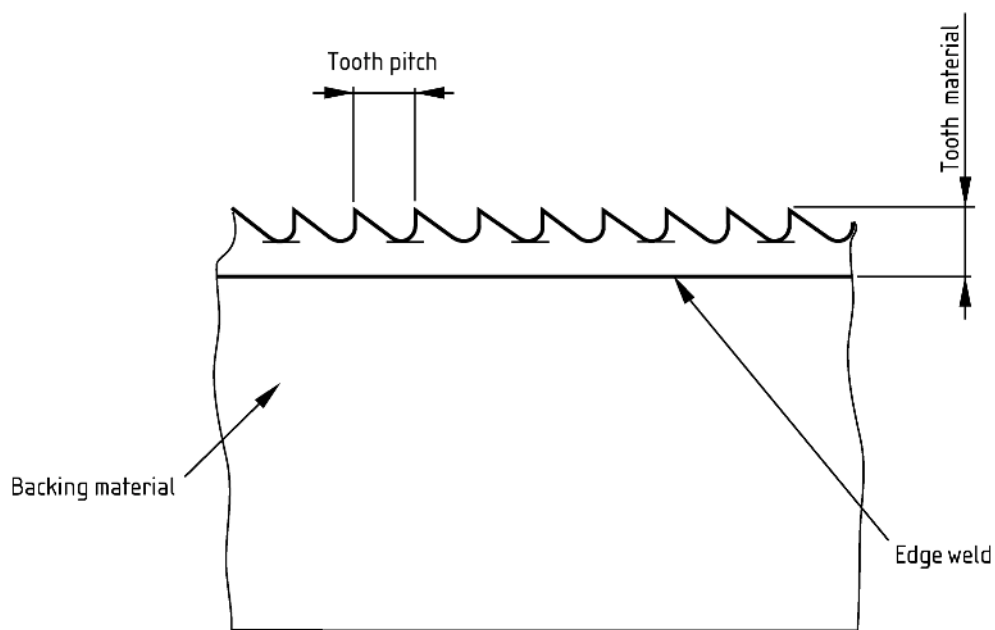


Figure 2 — Toothed hole-saw (typical construction)

4.2 Tipped toothed hole-saws

Tipped toothed hole-saws shall have permanently bonded teeth formed in a material suitable for their intended use.

NOTE Tipped hole-saws are typically constructed with tungsten carbide teeth permanently bonded to an alloy steel body.

4.3 Abrasive grit-edged hole-saws

Abrasive grit-edged hole-saws shall have abrasive grit particles, suitable for their intended use, permanently bonded to the cutting edge, in addition to or instead of teeth.

5 Design

5.1 Construction

The hole-saw body shall be made from alloy steel. The cap shall be permanently bonded (e.g. fusion welded) to the body.

Holes or slots shall be provided in the body to facilitate core removal.

5.2 Direction of rotation

The hole-saw shall be designed to cut when rotated in a clockwise direction viewed from the cap end.

5.3 Heat treatment

The hole-saw body shall be hardened and tempered to produce a minimum hardness of 40 HRc /380 Hv in accordance with BS EN ISO 6508-1 or BS EN ISO 6507-1 as appropriate.

Toothed hole-saws shall be hardened and tempered to produce a minimum hardness of 63 HRc /770 Hv in the teeth.

5.4 Finish

Hole-saws shall have a protective coating to prevent corrosion.

5.5 Screw threads

Screw threads shall conform to BS 1580.

5.6 Morse tapers

Morse tapers shall conform to BS 1660-1.

5.7 Standard diameters

Hole-saw diameters shall conform to the standard sizes specified in Table 1.