

Specification for

Hardmetal dies and associated hardmetal tools —

**Part 3: As-sintered pellets and finished
dies for drawing round bar**

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British Non-ferrous Metals Federation — High Conductivity Copper Group	Institute of Iron and Steel Wire Manufacturers
British Hard Metal Association	Individual experts
British Independent Steel Producers' Association	

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Foreword

Prepared under the authority of the Mechanical Engineering Industry Standards Committee, this Part of this British Standard takes into account the requirements of ISO Recommendation 1684, “*Wire, bar and tube drawing dies. Designation-Marking-Dimension*” which deals with finished dies, and dimensions of as-sintered pellets.

Part 1 of this British Standard specifies designation and marking of as-sintered pellets and finished dies and Part 2 of the standard specifies as-sintered pellets and finished dies for drawing round wire. Part 2 of this standard revises and extends the scope of the 1964 edition of BS 3821.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 General

1.1 Scope

This Part of this British Standard specifies as-sintered pellets and finished dies for drawing round bar from steel in the range 9 mm to 61 mm diameter and from non-ferrous metal within the range 9 mm to 72 mm diameter.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

1.2 Definitions

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

1.2.1

hardmetal

sintered material characterized by high strength and wear resistance, with hard substances, e.g. carbides, of refractory metal, as the main component and with a metallic binder phase

1.2.2

pellet

that component of a bar drawing die which is made from hardmetal. Prior to finishing it is usually termed the “as-sintered pellet” or “rough pellet”

1.2.3

case

that component of a bar drawing die into which the pellet is positively fixed

1.2.4

bore

the bore of the pellet including the entry, drawing, bearing and exit portions

1.2.5

finished die

the assembly of the case and the pellet after all operations have been completed

1.2.6

nominal size

the nominal size of the die: equal to the nominal size of the bar which it will produce

1.2.7

measured size

the actual measured value of the bearing diameter

1.2.8

designating size

the size of the die expressed as pellet diameter (d_2) $\times$ case diameter (d_3) (See Table 4 and Table 5.)

1.3 Symbols

For the purposes of this British Standard the symbols shown in Figure 1 and Figure 2 relate to the dimensions of as-sintered pellets and finished dies, respectively, for drawing round bar.

2 As-sintered pellet

2.1 Hardmetal grades

Pellets for bar drawing dies shall be manufactured in grades of hardmetal selected from BS 4276.

2.2 Forms and dimensions

The as-sintered pellet shall conform to the requirements of Table 1, Table 2 and Table 3 with respect to dimensions, tolerances and machining allowances (and See Figure 1).

As-sintered pellets for drawing dies shall be identified as follows:

Bar drawing dies for steel Reference letter C

Bar drawing dies for non-ferrous metal
Reference letter D

3 Case

3.1 Material

The case shall be manufactured from material selected in accordance with the following: from steel complying with the requirements of BS 970-1, 080M40¹⁾ or from steels equivalent or superior in mechanical properties.

3.2 Forms and dimensions

The case shall conform to the requirements given in Table 4 or Table 5 as applicable (and see Figure 2, Figure 3 and Figure 4).

The case may be of straight (code letter Z) or tapered (code letter K) form. When a tapered form is required, an included angle of $2\epsilon = 10^\circ$ shall be provided, in which event d_3 is the diameter of the larger end of the taper.

4 Finished die

4.1 General requirement

The finished die, consisting of hardmetal pellet and case, shall comply with the requirements specified in 4.2 and 4.3.

¹⁾ Steel 080M40 was previously designated En 8 in the superseded En series.