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Specification for

Machine tool components —

Part 7: Wide range collets

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Manufacturers	9 individual experts

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Foreword

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee. It is based on a draft prepared by the Machine Tool Trades Association. Wide range collets, sometimes known as “multisize”, “multibore” or “flexible” collets, are capable of being used for working both bright and precision black bar.

The standard covers three distinct types of dimensionally interchangeable wide range collets with 30° cone angles, which are suitable for use on capstan and turret lathes. These types of wide range collet may also be used on single spindle automatic lathes but two operating sleeves may be required to obtain the full range.

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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 Scope

1.1 This standard specifies a metric series of wide range collets. Three distinct types, designated Type A, Type B and Type C, are detailed, the external dimensions of which allow interchangeability of types with the various makes of capstan and turret lathes.

1.2 Wide range collets to this standard may be used in either dead length or draw-in collet chucks of suitable design.

1.3 Wide range collets to this standard may also be used on single spindle automatic lathes. However, it may be necessary to provide the collet chuck with two operating sleeves in order to obtain the full collet range.

2 Terms and definitions

For the purposes of this British Standard the following terms and definitions shall apply:

2.1

wide range collet

a holding device comprising segments or blades held together in a flexible manner and designed for rapid closing onto the workpiece or tool for the purpose of gripping and locating it. Each type of collet is available in a wide range of sizes

the three basic types of collets are described below:

a) *Type A (see Figure 1)*. Comprises wedge-shaped conical segments which are maintained at uniform separation from each other by compression springs. The segments are retained by circlips.

b) *Type B (see Figure 1)*. Comprises a number of wedge-shaped blades bonded together with resilient synthetic rubber which also maintains the correct tension and spacing. The rubber is oil and coolant resistant.

c) *Type C (see Figure 1)*. Comprises a number of wedge-shaped blades free to slide in a uniformly slotted body. The blades are tensioned by coil springs.

2.2

range

the difference between the maximum and minimum nominal bore sizes of a collet

2.3

major diameter

the largest diameter of the external, coned head of the collet across the theoretical sharp edges

2.4

operating sleeve mouth diameter

the major diameter of the mouth of the internal cone in the operating sleeve across the theoretical sharp edges

2.5

operating face

the thrust face of the collet through which the operating or clamping force is applied

2.6

cone angle

the included angle of the cone

2.7

cone length

the axial length from the operating face to the termination of the truncated cone

2.8

overall length

(dimensions given for reference purposes only.) The full axial length of the collet

2.9

standout

the axial distance from the operating face to the mouth of the operating sleeve

2.10

bore

the internal gripping surface of the collet

2.11

nose

the projection forwards from the operating face

3 Collet series and sizes

3.1 Three types of wide range collet as described in subclause 2.1 are specified, and are designated as Types A, B and C. (See Figure 1 and Table 2.)

NOTE All three types of wide range collets are not currently available in all the series, sizes and configurations detailed in Table 1. Those series, sizes and configurations which are currently available are detailed in Appendix A.

Six series of collets are detailed which are applicable to all three types of collet. (See Table 1.)

3.2 The size and capacity of individual collets provided for within each series are given in Table 1.

3.3 Table 1 also indicates the collet sizes which may be produced for gripping round, hexagonal and square cross-sectional bar.

3.4 Each collet should accept 0.25 mm above and below the range quoted.