

CONFIRMED
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Specification for

Gudgeon pins up to 200 mm diameter

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The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Executive Board on 31 January 1979

- British Cast Iron Research Association
- British Rubber Manufacturers' Association

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Foreword

This British Standard was prepared under the direction of the Mechanical Engineering Standards Committee and specifies in metric units, the data for a range of sizes of standard types of gudgeon pins for reciprocating internal combustion engines.

Although the gudgeon pins dealt with in this standard are primarily intended for internal combustion engines, they may also be suitable for use in other types of machinery, as for instance in reciprocating piston type compressors.

This revision has been prepared primarily to provide a basis for rationalization of design features, materials and other characteristics of gudgeon pins and incorporates current good practice used within the internal combustion engine manufacturing industry.

In the preparation of this standard, consideration was given to the equivalent German DIN Standards for gudgeon pins for reciprocating piston engines.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, 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

This British Standard specifies dimensions, surface textures and other features of design for various types of gudgeon pins, sometimes referred to as piston pins or wrist pins, all of which are case hardened. They are suitable for use in two and four stroke cycle spark and compression ignition reciprocating internal combustion engines. The standard covers pins of 10 mm to 200 mm diameter. Typical applications of various types of gudgeon pins are given.

NOTE Unless otherwise specified, all dimensions in this standard are in millimetres.

2 References

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

3 Gudgeon pin designs

The following designs of gudgeon pins are included.

Plain gudgeon pin. A pin with plain cylindrical inner and outer surfaces (see Figure 1). Usually located by flat type rectangular circlips, round wire circlips, or shrunk or pressed in the small end of the connecting rod.

Chamfer locking pin. A pin with chamfers on its outer edges which bear against round wire circlips fitted in semi-circular grooves within the gudgeon pin hole (see Figure 5).

Button or end pad pin. Usually a plain gudgeon pin but fitted with mushroom shaped pads, tightly fitting into the bore of the pin (see Figure 6). These pads are used to locate the pin within the cylinder.

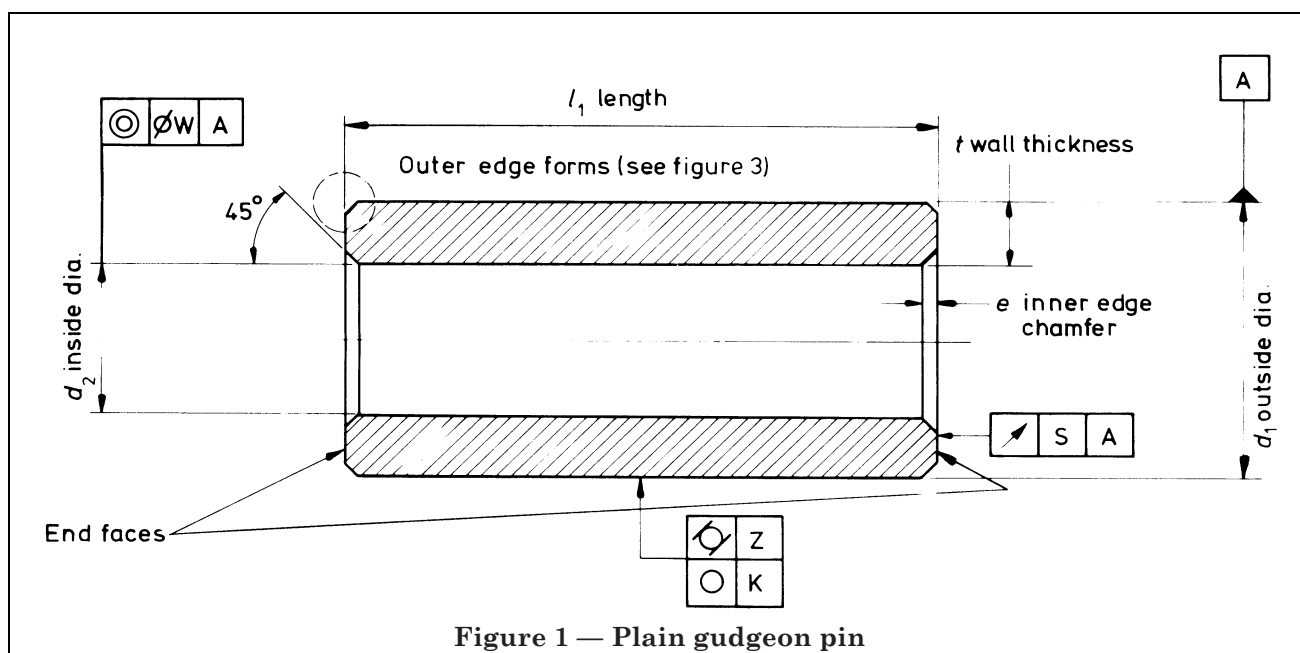
Clamp groove pins. A pin which is located by means of a bolt which clamps a split connecting rod small end, around the gudgeon pin. The bolt usually encroaches on the gudgeon pin surface in which an accommodating transverse or annular groove is provided, thus locating the pin in the connecting rod [see Figure 7(a) and Figure 7(b)].

Set screw location. A pin which is located by a set screw fitted in a tapped hole through one piston boss. The end of the screw, normally reduced in diameter, engages with a hole provided in the gudgeon pin (see Figure 8).

4 Basic design features (see Figure 1)

4.1 Outside diameter d_1 . The dimensions, limits, tolerances on longitudinal form and roundness, and the surface texture shall be as shown in Table 1 and Table 2 and Figure 1 and Figure 2.

Where the pin outside diameter is graded, the number and size range of grades shall correspond to the number and size range of grades in the gudgeon pin hole and these shall be agreed between the purchaser and the gudgeon pin supplier.



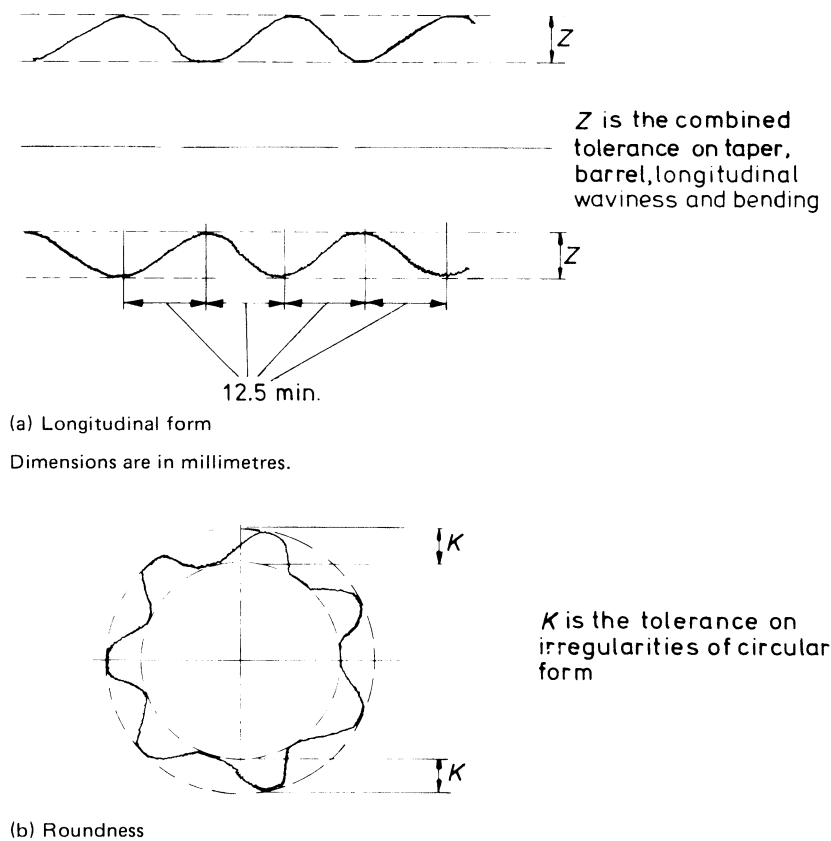


Figure 2 — Form tolerance

Table 1 — Dimensions for outside diameter

Pin length l_1	Outside diameter d_1	Increments of diameter	Limits on d_1	Tolerance on longitudinal form Z and roundness K [see Figure 2 (a) and Figure 2 (b)]
≤ 185	≤ 50	Each whole millimetre	+ 0.000 – 0.005	0.0015
	$> 50 \leq 80$	0–2–5–8–0	+ 0.000 – 0.008	0.002
> 185	≤ 50	Each whole millimetre	+ 0.000 – 0.010	0.0025
	$> 50 \leq 80$	0–2–5–8–0	+ 0.000 – 0.010	0.0025
All	$> 80 \leq 100$	0–2–5–8–0	+ 0.000 – 0.010	0.0025
	$> 100 \leq 120$	0–2–5–8–0	+ 0.000 – 0.015	
	$> 120 \leq 180$	0–5–0	+ 0.000 – 0.018	0.004
	$> 180 \leq 200$	0–5–0	+ 0.000 – 0.020	