INTERNATIONAL STANDARD

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Dentistry — Mandrels for rotary instruments

Art dentaire — Mandrins pour instruments rotatifs

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13295 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

This second edition cancels and replaces the first edition (ISO 13295:1994) which has been technically revised by the addition of three additional types and the clarification of labelling requirements.

Introduction

Mandrels are used for the support of rotary instruments. To achieve a general application, independent of the type of instrument, the standardization of mandrels is desirable. This will ease the usage of rotary instruments in dentistry.

Dentistry — Mandrels for rotary instruments

1 Scope

This International Standard specifies the requirements, the packaging and marking characteristics for mandrels suitable for discs and polishers used in dentistry.

This International Standard uses the system of coding laid down in ISO 6360, which specifies a 15-digit number for the identification of dental rotary instruments of all types.

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.

ISO 1797-1, *Dental rotary instruments — Shanks — Part 1: Shanks made of metals*

ISO 1942, *Dentistry — Vocabulary*

ISO 6360 (all parts), *Dentistry — Number coding system for rotary instruments*

ISO 6892, *Metallic materials — Tensile testing — Method of testing at ambient temperature*

ISO 8325:2004, *Dentistry — Test methods for rotary instruments*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942 and the following apply.

3.1
mandrel
rotary shaft for holding dental rotary instruments

4 Classification

For the purposes of this document, mandrels are classified according to their mechanical properties and the application for which they are recommended as follows:

— **Type 1:** mandrel, standard;

— **Type 2:** mandrel, reinforced;

— **Type 3:** mandrel with cylindrical thread for fixing unmounted polishers;

— **Type 4:** mandrel with conical thread for fixing unmounted polishers;

— **Type 5:** mandrel on which polishers can be snapped.

5 Requirements

5.1 Material

5.1.1 Proof strength, $R_{p0,2}$

Mandrel Type 1, mandrel Type 2, screw for Type 1 and Type 2, mandrel Type 3 and mandrel Type 4 shall be made of a material with a proof strength of at least 600 MPa.

Type and treatment shall be left to the discretion of the manufacturer.

Testing shall be carried out in accordance with 6.1.

5.1.2 Vickers hardness

Mandrel Type 5 shall be made of a material with a minimum Vickers hardness of 250 N/mm^2.

Type and treatment shall be left to the discretion of the manufacturer.

5.2 Dimensions

5.2.1 General

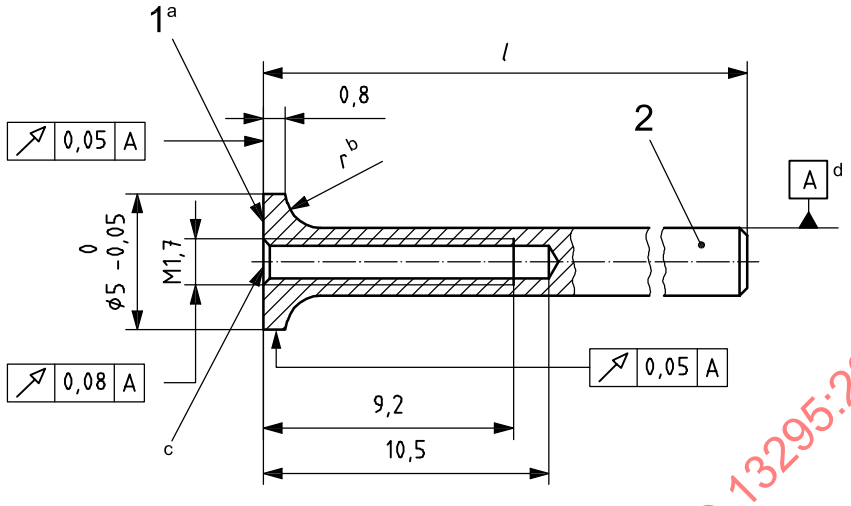
The dimensions and their tolerances are given in millimetres. Angles are given in degrees.

The dimensions shall be as shown in Figures 1 to 6.

This International Standard specifies only mandrels with a diameter of the plate and the screw head of 5 mm. Other diameters are possible. [See 7 f).]

Testing shall be carried out in accordance with 6.2.

5.2.2 Mandrel, Type 1



l	
Shank, Type 1	Shank, Type 2
min. 20	44,5 ± 0,5

Key

1 plate

2 shank, in accordance with ISO 1797-1, Type 1 or Type 2

NOTE The screw of Figure 3 can be used.

a The plate diameter shall be identical with the screw head diameter.

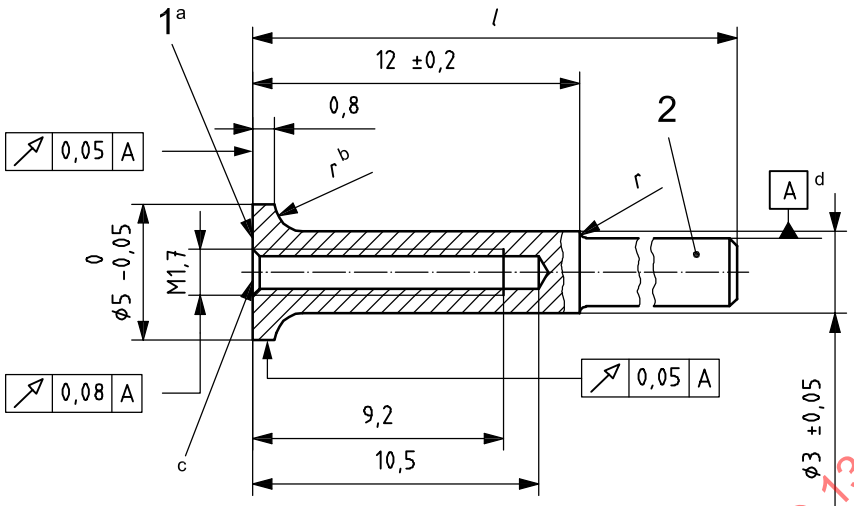
b Radius at discretion of manufacturer.

c Countersunk at the discretion of the manufacturer.

d Testing of run-out in accordance with ISO 8325:2004, 5.8.

Figure 1 — Mandrel, Type 1

5.2.3 Mandrel, Type 2



l	
Shank Type 1	Shank Type 2
min. 30	44,5 ± 0,5

Key

1 plate

2 shank, in accordance with ISO 1797-1, Type 1 or Type 2

NOTE The screw of Figure 3 can be used.

a The plate diameter shall be identical with the screw head diameter.

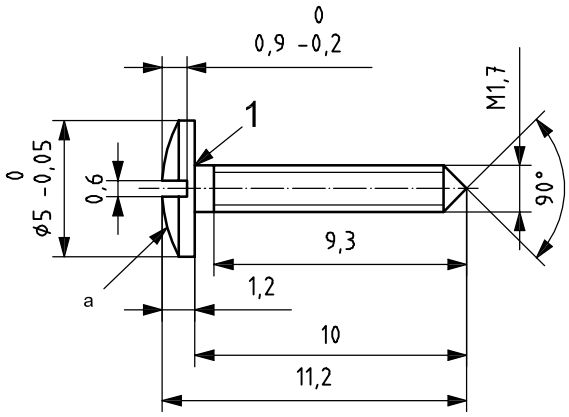
b Radius at discretion of manufacturer.

c Countersunk at the discretion of the manufacturer.

d Testing of run-out in accordance with ISO 8325:2004, 5.8.

Figure 2 — Mandrel, Type 2

5.2.4 Screw for Type 1 and Type 2



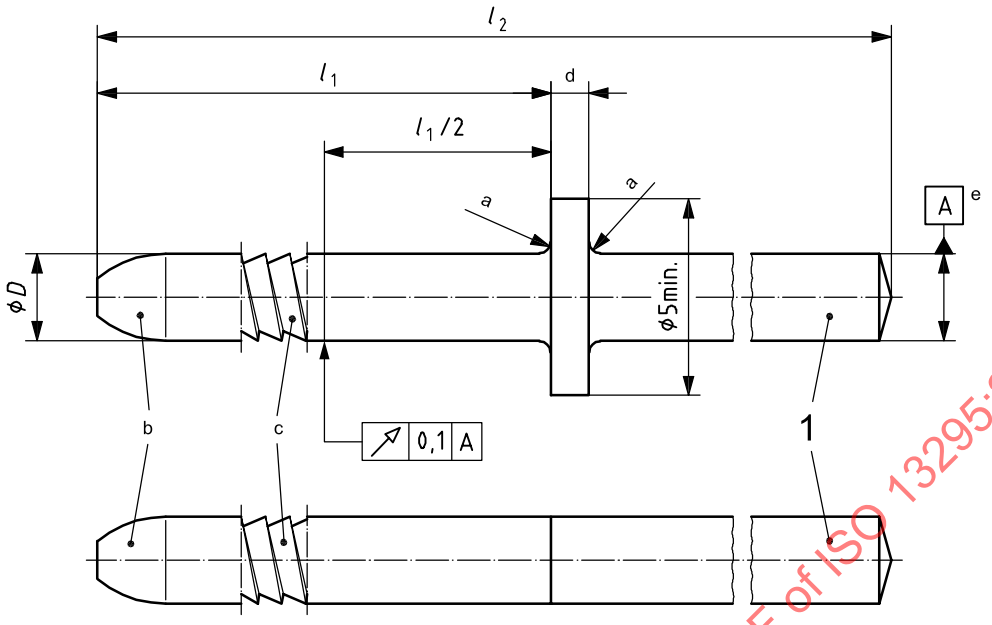
Key

1 undercut

[a] Radius at the discretion of manufacturer.

Figure 3 — Screw for Type 1 and Type 2

5.2.5 Mandrel, Type 3



l_1 ± 0,2	l_2 min.	Ø D ± 0,1
8	46,0	2,3
12	46,0	2,3

Key

1 shank, ISO 1797-1, Type 2

a Radius at the discretion of the manufacturer.

b Tip at the discretion of the manufacturer.

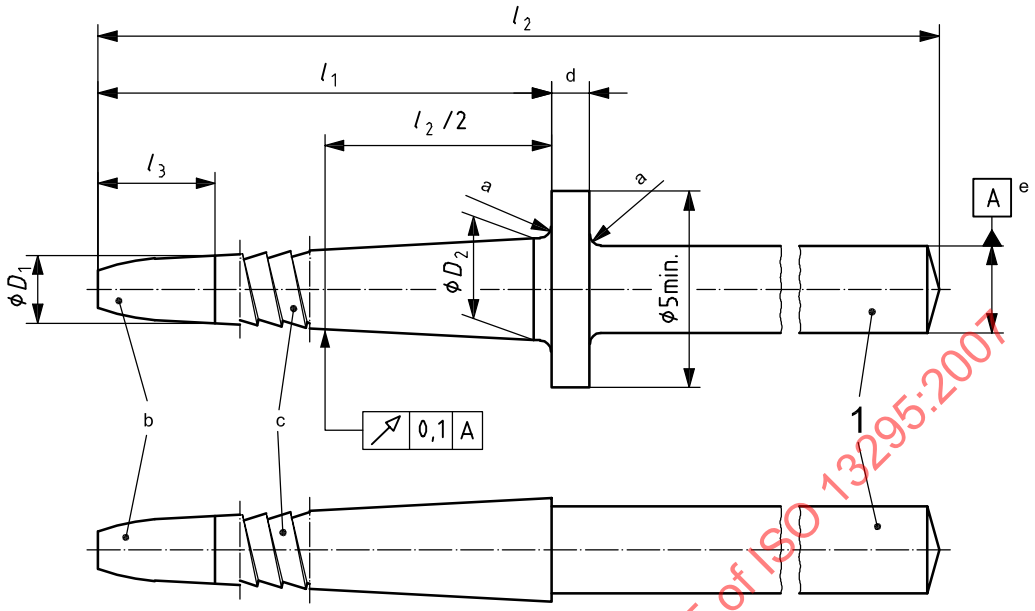
c Thread profile at the discretion of the manufacturer.

d Thickness at the discretion of the manufacturer.

e Testing of run-out in accordance with ISO 8325:2004, 5.8.

Figure 4 — Mandrel, Type 3

5.2.6 Mandrel, Type 4



l_1 ± 0,2	l_2 min. Type 1	l_2 min. Type 2	l_3 min.	Ø D_1 ± 0,1	Ø D_2 ± 0,1
8	28,0	46,0	3,0	1,6	2,4
12	28,0	46,0	3,0	1,8	2,7
12	28,0	46,0	3,0	1,8	3,1

Key

1 shank, ISO 1797-1, Type 2

a Radius at the discretion of the manufacturer.

b Tip at the discretion of the manufacturer.

c Thread profile at the discretion of the manufacturer.

d Thickness at the discretion of the manufacturer.

e Testing of run-out in accordance with ISO 8325:2004, 5.8.

Figure 5 — Mandrel, Type 4