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# International Standard



# 7711

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Dental rotary instruments — Diamond instruments

*Instruments rotatifs dentaires — Instruments diamantés*

First edition — 1984-12-15

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UDC 616.314-7 : 621.921.34

Ref. No. ISO 7711-1984 (E)

**Descriptors** : dentistry, dental instruments, diamond tools, dental rotary-cutting instruments, specifications, dimensions.

Price based 20 pages

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7711 was prepared by Technical Committee ISO/TC 106, *Dentistry*.

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# Dental rotary instruments — Diamond instruments

## 0 Introduction

This International Standard is one of a series of standards relating to dental rotary instruments.

The various dimensional and other requirements specified for diamond instruments are those considered important to ensure the interchangeability of these instruments.

Attention is drawn to ISO 6360 which specifies a 15 digit number for the identification of dental rotary instruments of all types.

## 1 Scope and field of application

This International Standard specifies the dimensional and other requirements for the 29 most commonly used shapes of diamond instruments. It is envisaged to extend the scope of this International Standard at its first revision to cover other shapes of diamond instruments.

## 2 References

ISO 1797, *Dental rotary instruments — Shanks.*<sup>1)</sup>

ISO 2157, *Dental rotary instruments — Nominal sizes and designation.*

ISO 6360, *Dental rotary instruments — Number coding system.*<sup>2)</sup>

ISO 8325, *Dental rotary instruments — Test methods.*<sup>2)</sup>

## 3 Symbols for the dimensions

$d_1$  diameter of working part, head diameter.

$d_2$  neck diameter measured immediately behind the diamond coating.

$d_3$  diameter of the coated neck measured at the smallest diameter.

$l_1$  length of working part, head length.

$l_2$  overall length.

## 4 Material

The shaft shall be made of steel or other suitable material. The type of steel and the treatment given to it shall be left to the discretion of the manufacturer. The working part shall be made of diamond grit, bound in either metal, plastics or other materials at the discretion of the manufacturer.

## 5 Dimensions of working part

All dimensions are in millimetres.

The dimensions determined as described in ISO 8325 shall be as specified in tables 1 to 29.

For the overall length see clause 6, tables 30 to 33.

Shanks shall be in accordance with ISO 1797.

1) At present at the stage of draft. (Revision of ISO 1797-1976.)

2) At present at the stage of draft.

5.1 Round head, spherical

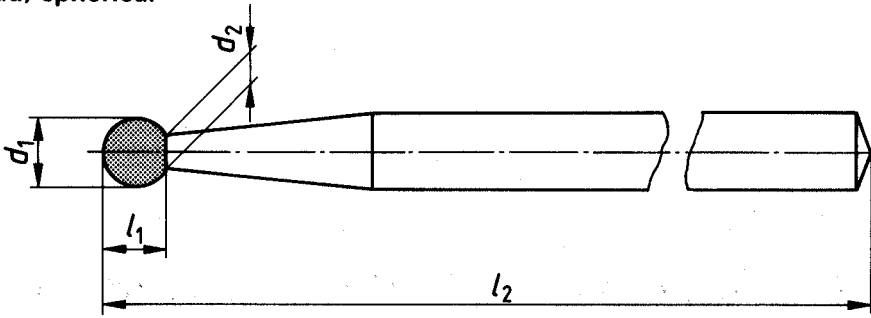


Figure 1

Table 1 — Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
010	1,0	0,65	0,63
012	1,2	0,85	0,73
014	1,4	1,05	0,83
016	1,6	1,30	0,89
018	1,8	1,50	0,97
021	2,1	1,80	1,05
023	2,3	2,00	1,13
025	2,5	2,15	1,25
027	2,7	2,35	1,33
029	2,9	2,55	1,45
033	3,3	2,90	1,63
036	3,5	3,10	1,67
042	4,2	3,80	2,01

NOTE — For overall length  $l_2$  see table 30.  
<https://standards.iteh.ai/catalog/standards/sist/ab70fc1c-dd5e-4570-9757-146ced2fe120/iso-7711-1984>

5.2 Round head, spherical with collar

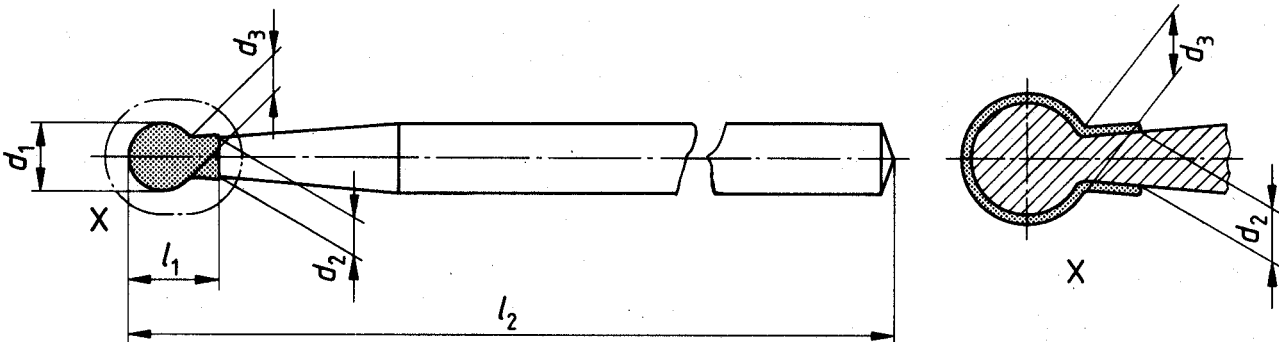


Figure 2

Table 2 — Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.	$d_3$ $\pm 0,1$
010	1,0	2,2	0,96	0,78
012	1,2	2,2	1,00	0,88
014	1,4	2,2	1,04	0,98
016	1,6	2,2	1,10	1,04
018	1,8	2,2	1,18	1,12
021	2,1	2,2	1,26	1,20
023	2,3	2,5	1,32	1,28
025	2,5	2,5	1,44	1,40

NOTE — For overall length  $l_2$  see table 30.

5.3 Inverted, truncated, conical

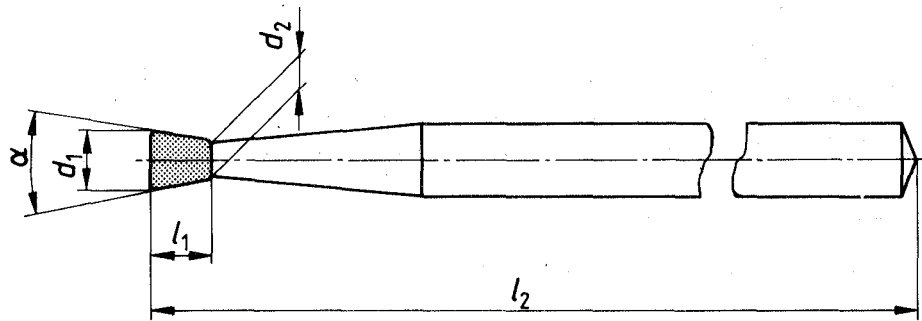


Figure 3

Table 3 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$\alpha$ degrees	$d_2$ max.
010	1,0	0,65	6 to 16	0,63
012	1,2	0,85	6 to 16	0,73
014	1,4	1,05	6 to 16	0,83
016	1,6	1,30	6 to 16	0,89
018	1,8	1,50	6 to 16	0,97
021	2,1	1,80	10 to 22	1,05
023	2,3	2,00	10 to 22	1,13
025	2,5	2,15	10 to 22	1,25
027	2,7	2,35	10 to 22	1,33

NOTE — For overall length  $l_2$  see table 30.

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5.4 Inverted conical with collar

<https://standards.iteh.ai/catalog/standards/sist/ab70f1c-dd5e-4570-9757-146ced2fe120/iso-7711-1984>

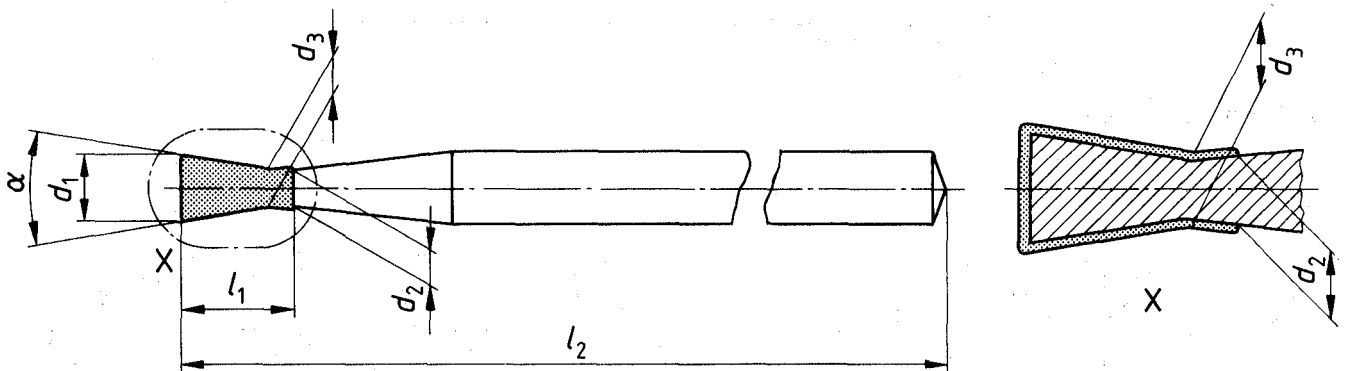


Figure 4

Table 4 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$\alpha$ degrees	$d_2$ max.	$d_3$ $\pm 0,1$
010	1,0	2,2	6 to 16	0,96	0,78
012	1,2	2,2	6 to 16	1,00	0,88
014	1,4	2,2	6 to 16	1,04	0,98
016	1,6	2,2	6 to 16	1,10	1,04
018	1,8	2,2	6 to 16	1,18	1,12
021	2,1	2,2	10 to 22	1,26	1,20
023	2,3	2,5	10 to 22	1,32	1,28
025	2,5	2,5	10 to 22	1,44	1,40

NOTE — For overall length  $l_2$  see table 30.

5.5 Wheel

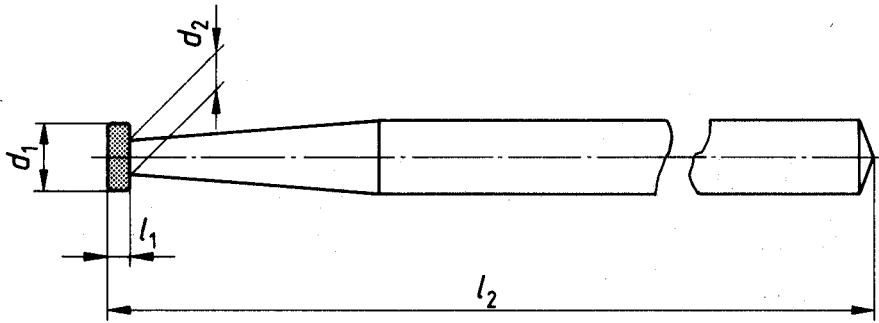


Figure 5

Table 5 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
012	1,2	0,3	0,73
014	1,4	0,3	0,83
016	1,6	0,4	0,89
018	1,8	0,4	0,97
021	2,1	0,5	1,05
023	2,3	0,6	1,13
025	2,5	0,6	1,25
027	2,7	0,6	1,33
029	2,9	0,6	1,45
031	3,1	0,6	1,53
033	3,3	0,6	1,63
035	3,5	0,6	1,67
037	3,7	0,6	1,77
040	4,0	0,6	1,91
042	4,2	0,6	2,01
045	4,5	0,6	2,01
047	4,7	0,6	2,09
050	5,0	0,6	2,17

NOTE – For overall length  $l_2$  see table 30.

5.6 Wheel with collar

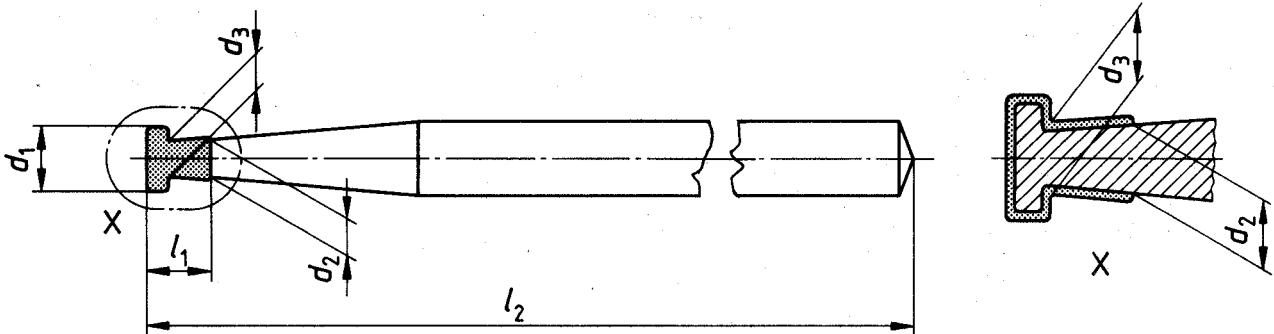


Figure 6

Table 6 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.	$d_3$ $\pm 0,1$
012	1,2	2,2	1,00	0,88
016	1,6	2,2	1,10	1,04
018	1,8	2,2	1,18	1,12
023	2,3	2,2	1,32	1,23

NOTE – For overall length  $l_2$  see table 30.

5.7 Cylindrical

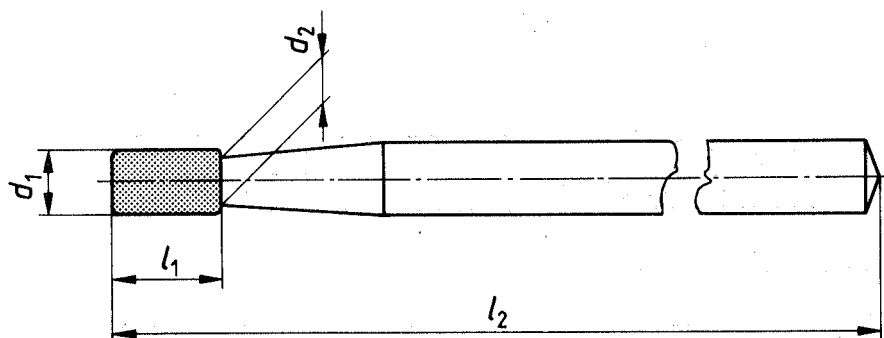


Figure 7

Table 7 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
010	1,0	3,0	1,00
012	1,2	3,5	1,20
014	1,4	3,5	1,35
016	1,6	3,5	1,50
018	1,8	4,0	1,60
021	2,1	4,0	1,70
025	2,5	4,0	1,85

NOTE — For overall length  $l_2$  see table 30.

<https://standards.iteh.ai/catalog/standards/sist/ab70fc1c-dd5e-4570-9757-146ced2fe120/iso-7711-1984>

5.8 Cylindrical, head length  $5,5 \text{ mm} \leq l_1 < 7,5 \text{ mm}$

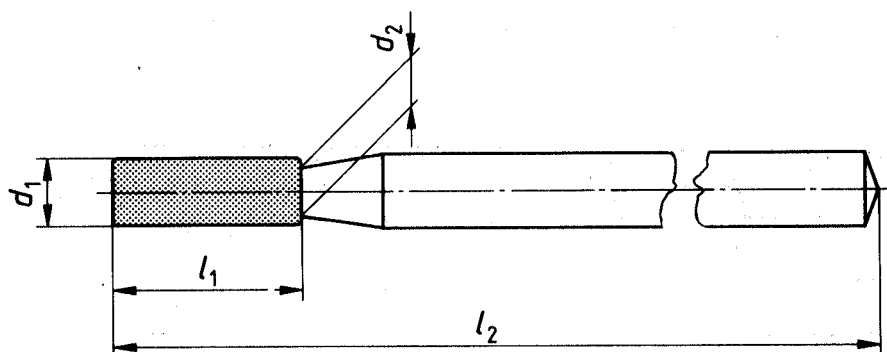


Figure 8

Table 8 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
012	1,2	5,5	1,20
014	1,4	5,5	1,35
016	1,6	5,5	1,50
018	1,8	5,5	1,60
023	2,3	5,5	1,80
025	2,5	5,5	1,85

NOTE — For overall length  $l_2$  see table 31.

5.9 Cylindrical, head length  $7,5 \text{ mm} \leq l_1 < 9,5 \text{ mm}$

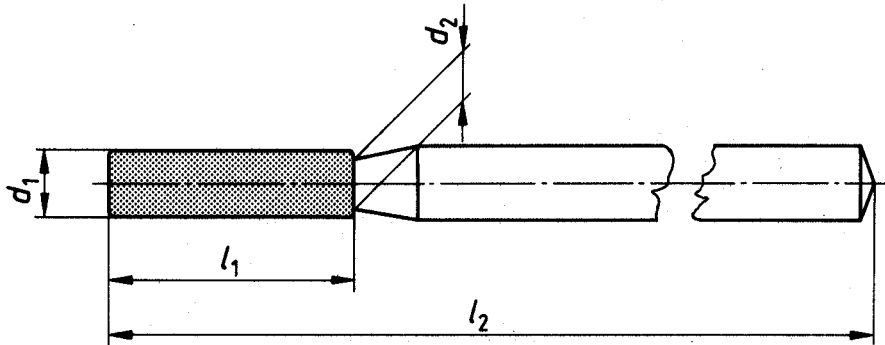


Figure 9

Table 9 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
012	1,2		1,20
014	1,4		1,35
016	1,6		1,50
018	1,8	$> 7,5$ $< 9,5$	1,60
021	2,1		1,70
023	2,3		1,80
025	2,5		1,85

NOTE — For overall length  $l_2$  see table 32.

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[146ced2fe120/iso-7711-1984](https://standards.iteh.ai/catalog/standards/sist/ab70fc1c-dd5e-4570-9757-146ced2fe120/iso-7711-1984)

5.10 Cylindrical, head length  $9,5 \text{ mm} \leq l_1 < 11,5 \text{ mm}$

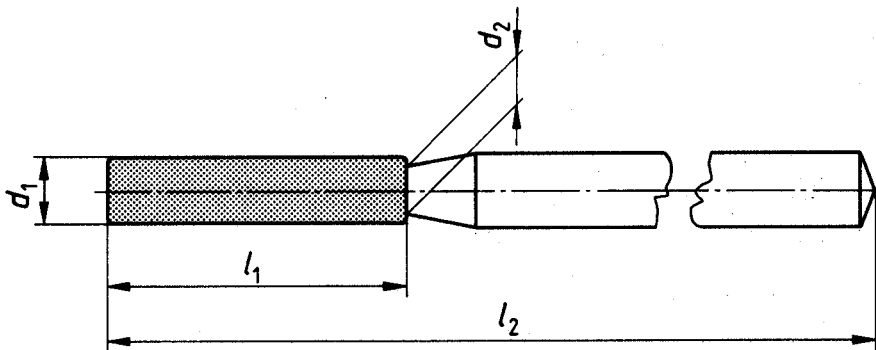


Figure 10

Table 10 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
014	1,4		1,35
018	1,8	$> 9,5$ $< 11,5$	1,60
025	2,5		1,85

NOTE — For overall length  $l_2$  see table 33.



5.11 Truncated conical

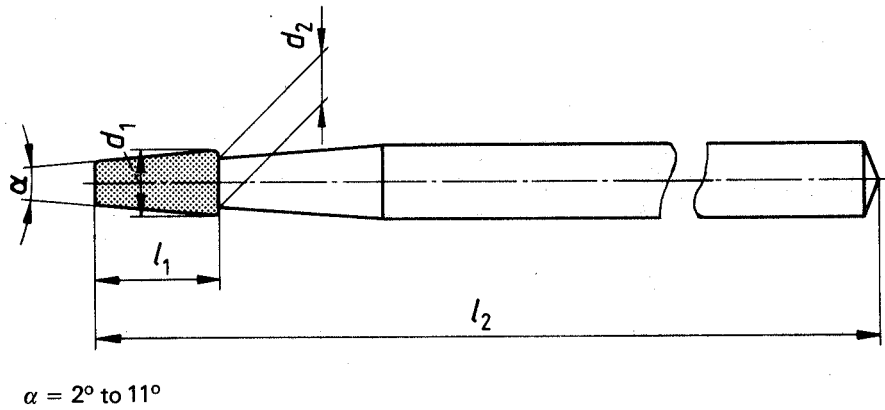


Figure 11

Table 11 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
010	1,0	3,0	1,00
012	1,2	3,5	1,20
014	1,4	3,5	1,35
016	1,6	3,5	1,50
018	1,8	4,0	1,60
025	2,5	4,0	1,85
031	3,1	4,0	2,00
035	3,5	4,0	2,00

NOTE — For overall length  $l_2$  see table 30.  
<https://standards.iteh.ai/catalog/standards/sist/ab70fc1c-dd5e-4570-9757-146ced2fe120/iso-7711-1984>

5.12 Truncated conical, head length  $5,5 \text{ mm} \leq l_1 < 7,5 \text{ mm}$

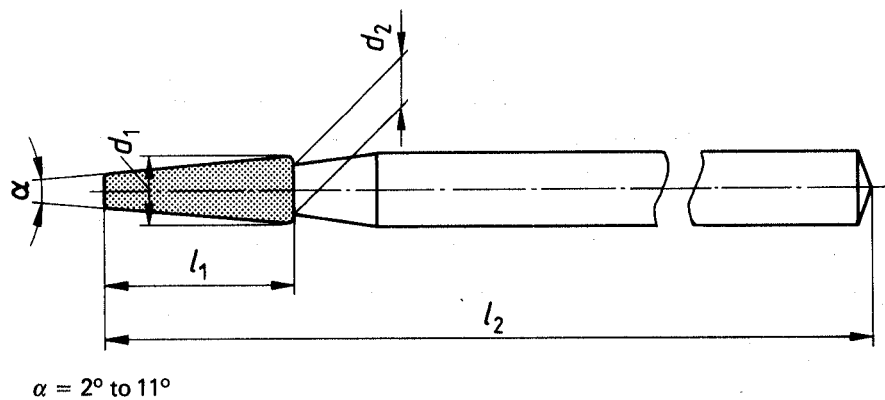


Figure 12

Table 12 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
010	1,0		1,00
012	1,2		1,20
014	1,4	$\geq 5,5$	1,35
016	1,6	$< 7,5$	1,50
018	1,8		1,60
025	2,5		1,85

NOTE — For overall length  $l_2$  see table 31.

5.13 Truncated conical, head length  $7,5 \text{ mm} \leq l_1 < 9,5 \text{ mm}$

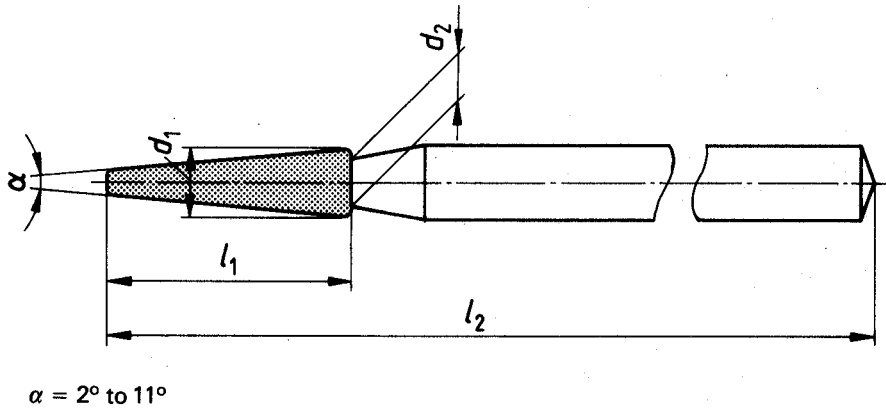


Figure 13

Table 13 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
010	1,0		1,00
012	1,2		1,20
014	1,4		1,35
016	1,6	$> 7,5$ $< 9,5$	1,50
018	1,8		1,60
023	2,3		1,80
025	2,5		1,85

NOTE – For overall length  $l_2$  see table 32.

5.14 Truncated conical, head length  $9,5 \text{ mm} \leq l_1 < 11,5 \text{ mm}$

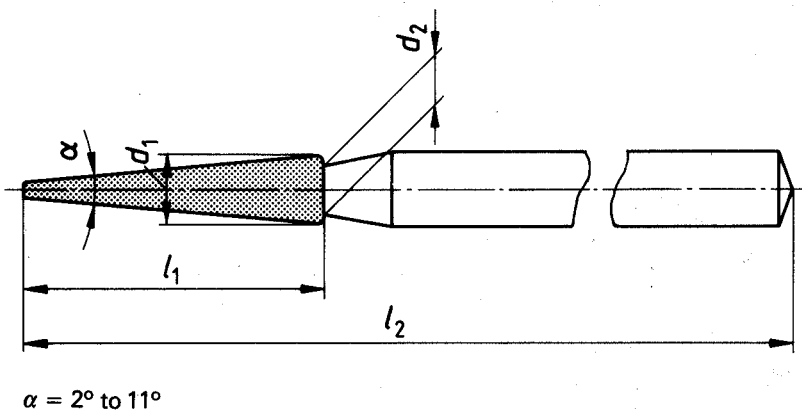


Figure 14

Table 14 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
012	1,2		1,20
014	1,4		1,35
016	1,6	$\geq 9,5$	1,50
018	1,8	$< 11,5$	1,60
021	2,1		1,70
023	2,3		1,80
025	2,5		1,85

NOTE – For overall length  $l_2$  see table 33.

5.15 Hemispherical cylindrical

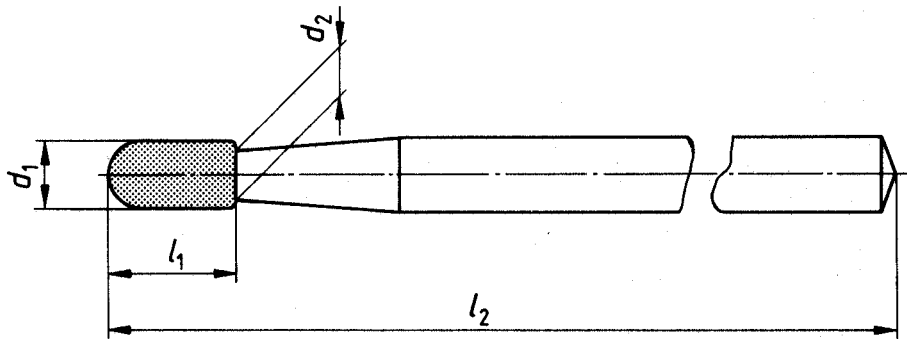


Figure 15

Table 15 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$ min.	$d_2$ max.
010	1,0	3,0	1,00
012	1,2	3,5	1,20
014	1,4	3,5	1,35
016	1,6	3,5	1,50
018	1,8	4,0	1,60
025	2,5	4,0	1,85

NOTE — For overall length  $l_2$  see table 30.

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5.16 Hemispherical cylindrical, head length  $5,5 \text{ mm} < l_1 < 7,5 \text{ mm}$

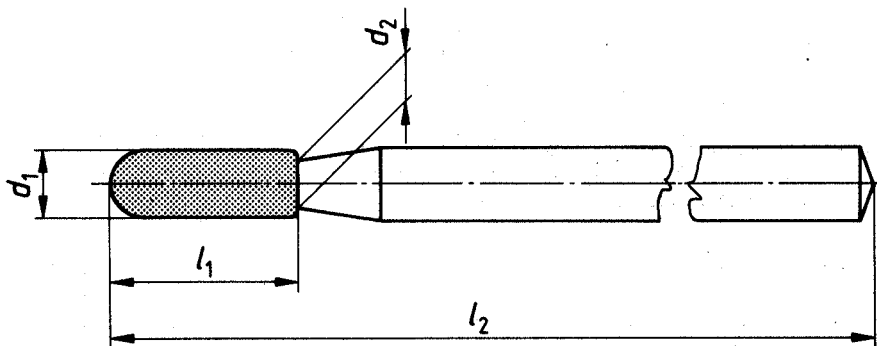


Figure 16

Table 16 – Dimensions

Nominal size	$d_1$ $\pm 0,1$	$l_1$	$d_2$ max.
012	1,2		1,20
014	1,4	$> 5,5$	1,35
018	1,8	$< 7,5$	1,60
025	2,5		1,85
027	2,7		1,90

NOTE — For overall length  $l_2$  see table 31.