

International Standard



7711

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

Dental rotary instruments — Diamond instruments

Instruments rotatifs dentaires — Instruments diamantés

First edition — 1984-12-15

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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*.

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*.¹⁾

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

ISO 6360, *Dental rotary instruments — Number coding system*.²⁾

ISO 8325, *Dental rotary instruments — Test methods*.²⁾

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

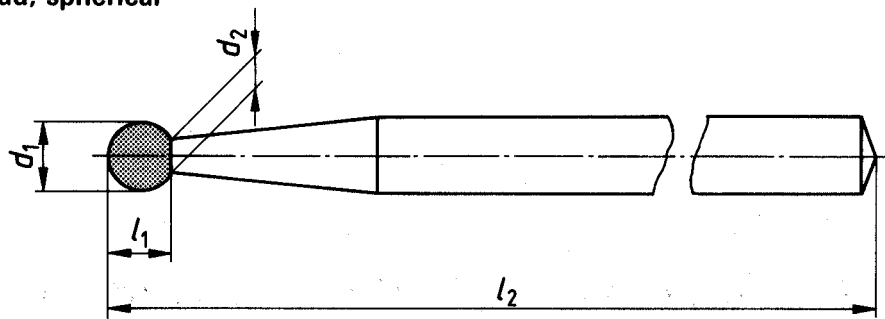


Figure 1

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.

5.2 Round head, spherical with collar

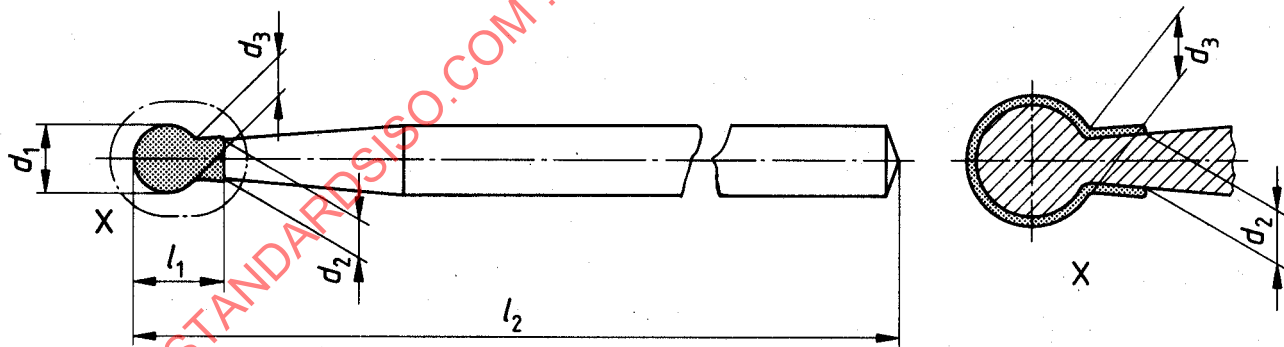


Figure 2

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

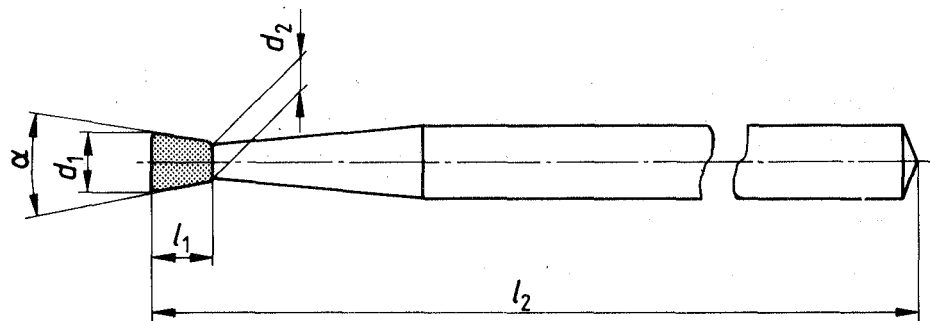


Figure 3

Table 3 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1 min.	α 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.

5.4 Inverted conical with collar

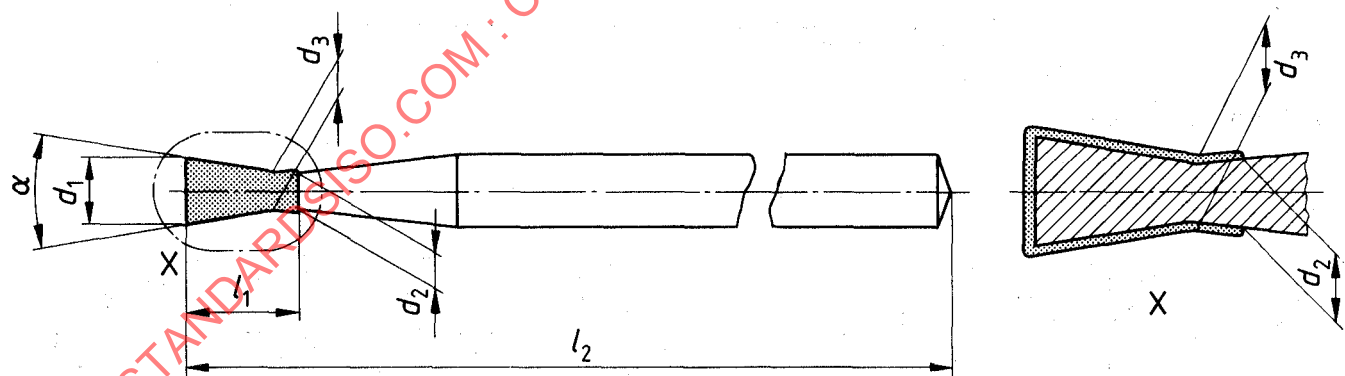


Figure 4

Table 4 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1 min.	α 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

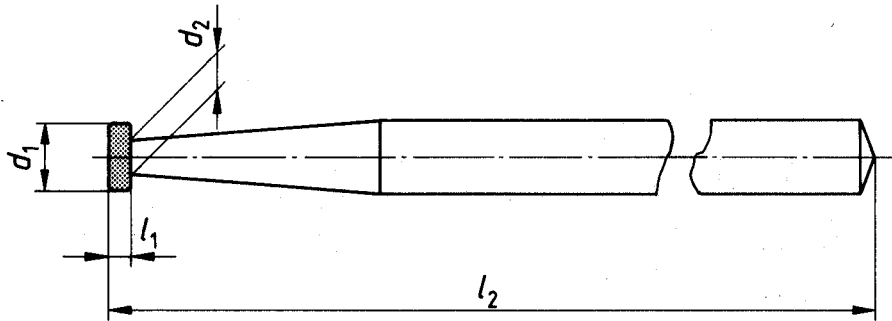


Figure 5

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

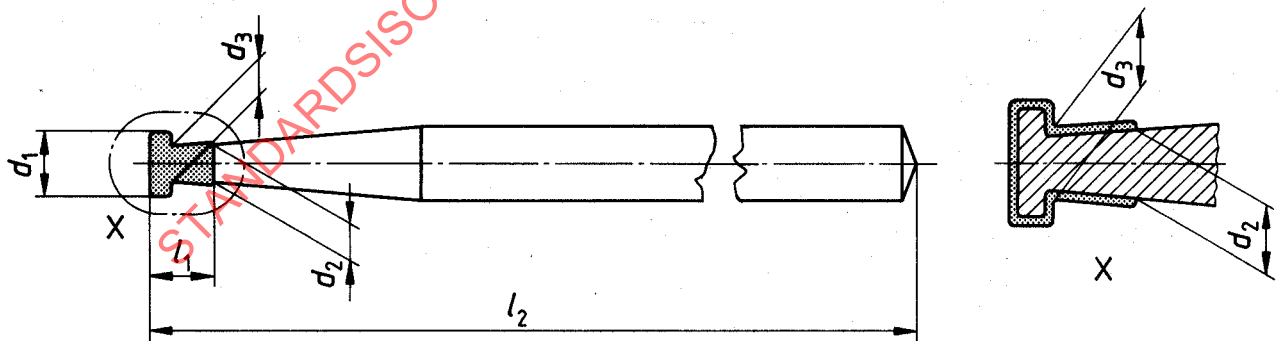


Figure 6

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

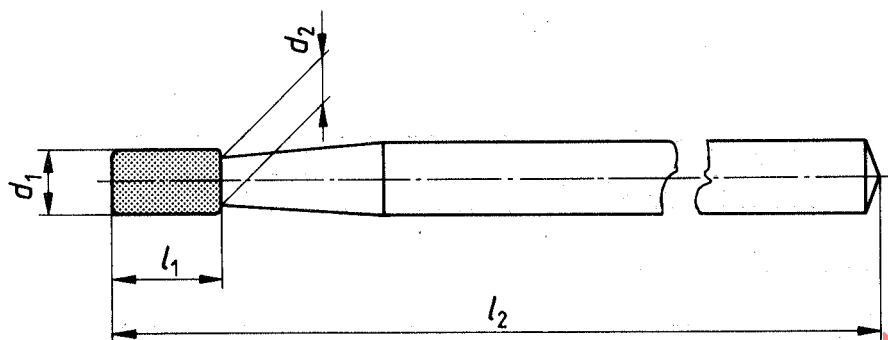


Figure 7

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

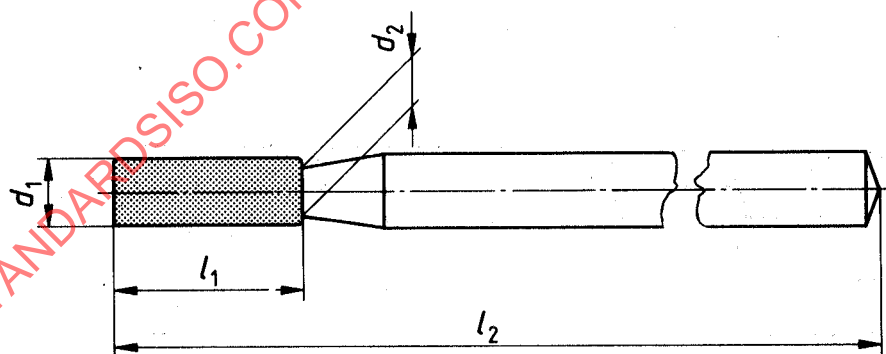
NOTE — For overall length l_2 see table 30.5.8 Cylindrical, head length $5,5 \text{ mm} \leq l_1 < 7,5 \text{ mm}$ 

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 $7,5\text{ mm} \leq l_1 < 9,5\text{ mm}$

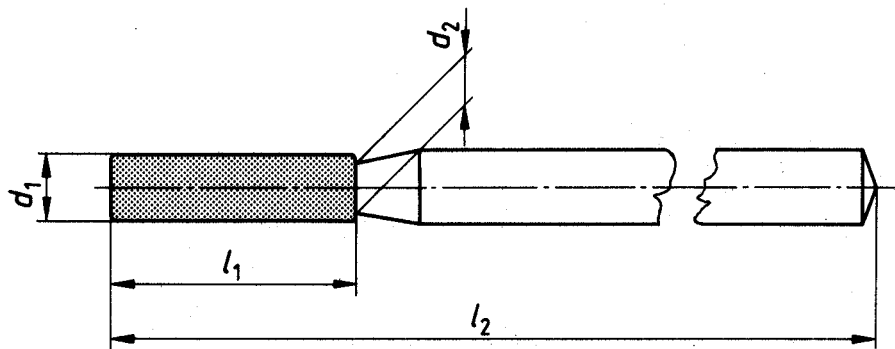


Figure 9

Table 9 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
012	1,2	$> 7,5$ $< 9,5$	1,20
014	1,4		1,35
016	1,6		1,50
018	1,8		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.

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

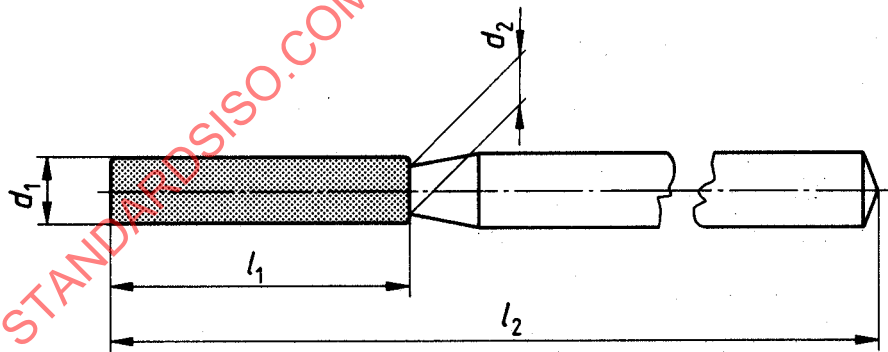


Figure 10

Table 10 — Dimensions

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

NOTE — For overall length l_2 see table 33.

5.11 Truncated conical

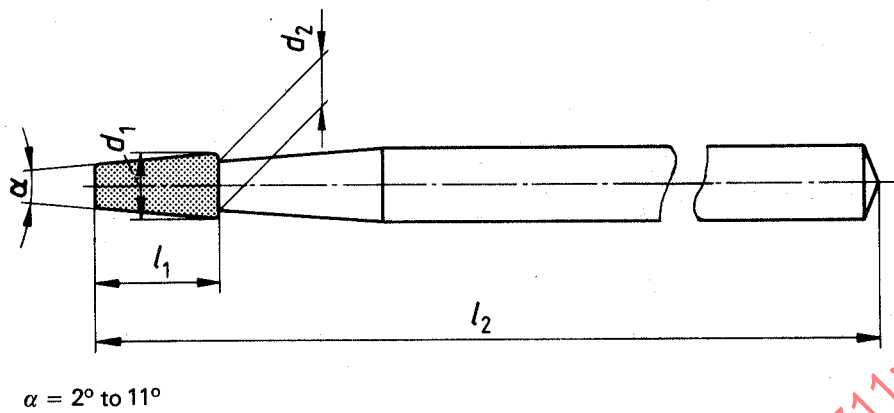


Figure 11

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.

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

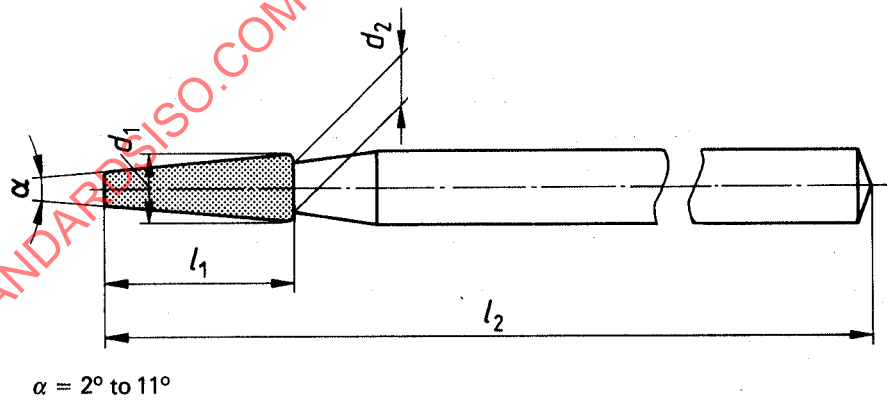


Figure 12

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 $7,5 \text{ mm} \leq l_1 < 9,5 \text{ mm}$

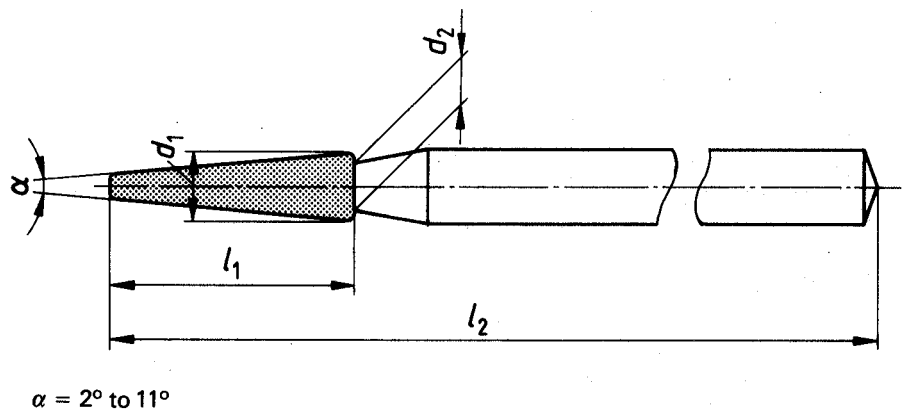


Figure 13

Table 13 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
010	1,0	$> 7,5$ $< 9,5$	1,00
012	1,2		1,20
014	1,4		1,35
016	1,6		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 $9,5 \text{ mm} \leq l_1 < 11,5 \text{ mm}$

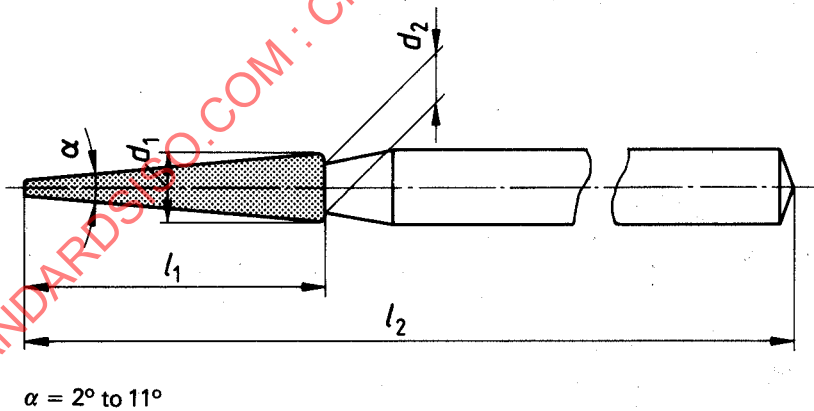


Figure 14

Table 14 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
012	1,2	$> 9,5$ $< 11,5$	1,20
014	1,4		1,35
016	1,6		1,50
018	1,8		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

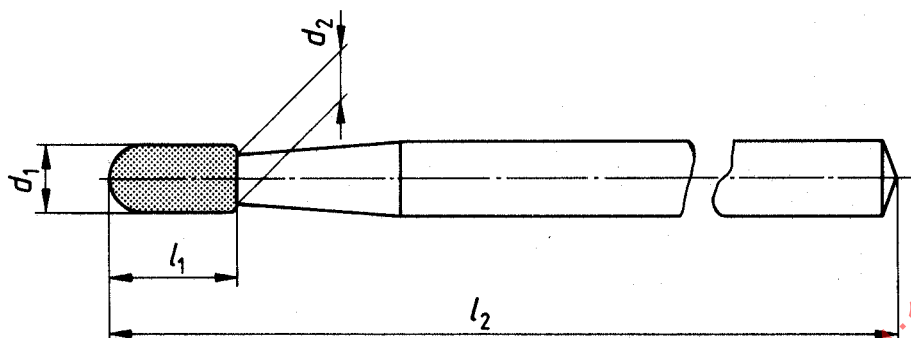


Figure 15

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

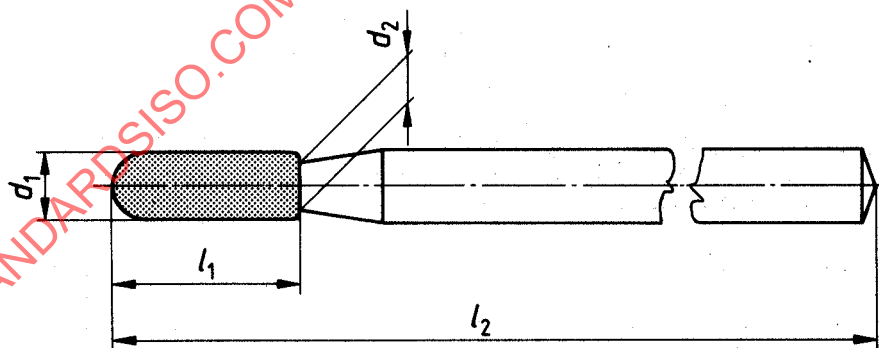
NOTE — For overall length l_2 see table 30.5.16 Hemispherical cylindrical, head length $5,5 \text{ mm} \leq l_1 < 7,5 \text{ mm}$ 

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	$\geq 5,5$	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.

5.17 Hemispherical cylindrical, head length $7,5 \text{ mm} \leq l_1 < 9,5 \text{ mm}$

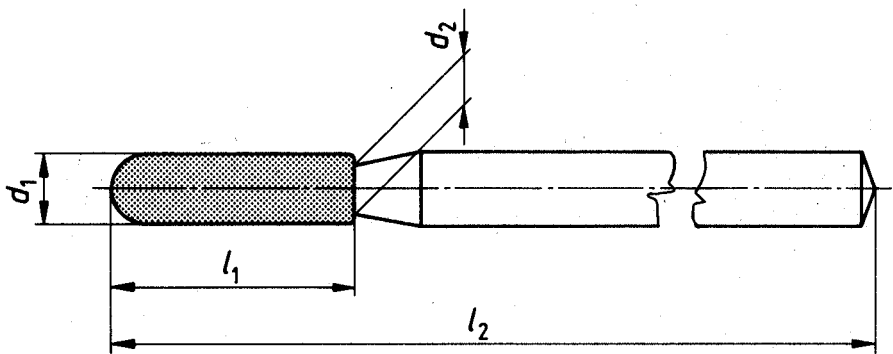


Figure 17

Table 17 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
012	1,2		1,20
014	1,4	$> 7,5$	1,35
018	1,8	$< 9,5$	1,60
025	2,5		1,85

NOTE — For overall length l_2 see table 32.

5.18 Hemispherical cylindrical, head length $9,5 \text{ mm} \leq l_1 < 11,5 \text{ mm}$

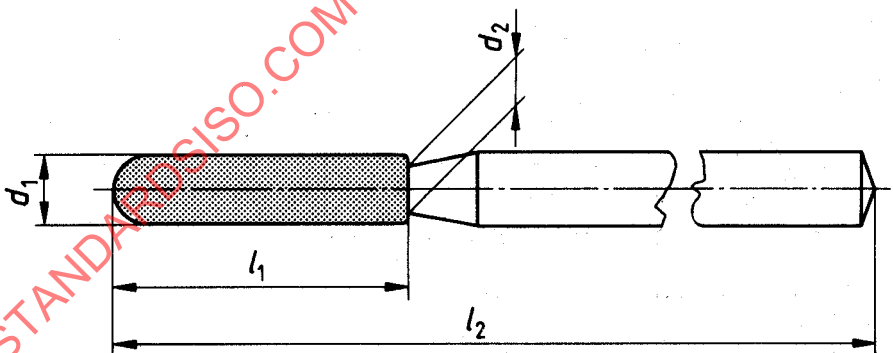


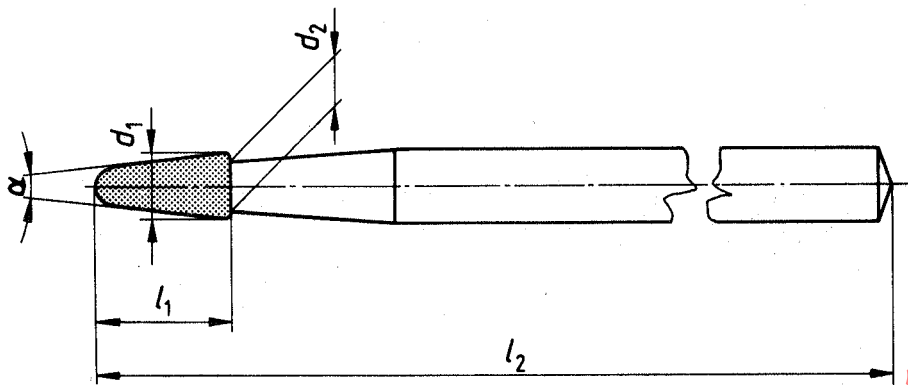
Figure 18

Table 18 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
012	1,2		1,20
014	1,4	$> 9,5$	1,35
018	1,8	$< 11,5$	1,60
025	2,5		1,85

NOTE — For overall length l_2 see table 33.

5.19 Truncated conical, domed



$\alpha = 2^\circ \text{ to } 11^\circ$

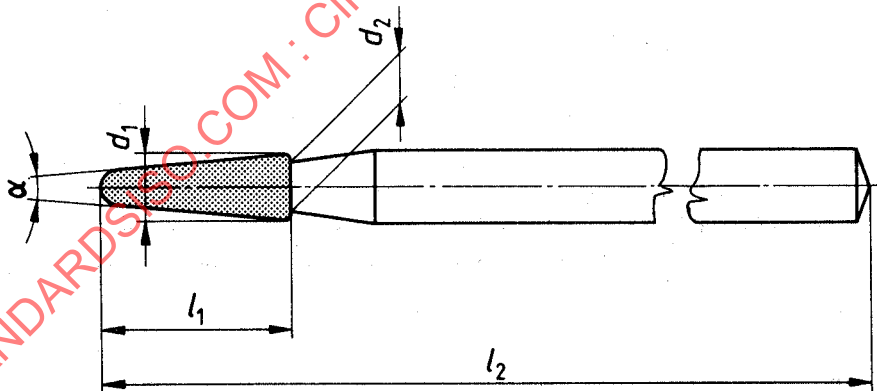
Figure 19

Table 19 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1 min.	d_2 max.
010	1,00	3,00	1,00
012	1,20	3,50	1,20
014	1,40	3,50	1,35
016	1,60	3,50	1,50
025	2,50	4,00	1,85
031	3,10	4,00	2,00
035	3,50	4,00	2,00

NOTE — For overall length l_2 see table 30.

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



$\alpha = 2^\circ \text{ to } 11^\circ$

Figure 20

Table 20 — Dimensions

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

NOTE — For overall length l_2 see table 31.

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

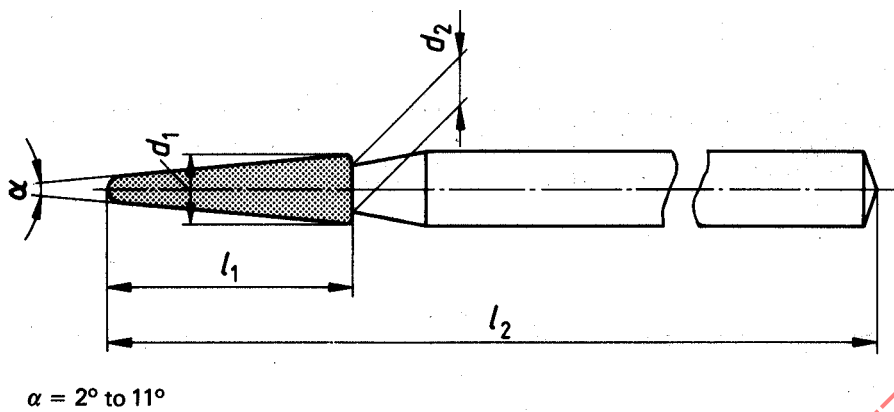


Figure 21

Table 21 — Dimensions

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

NOTE — For overall length l_2 see table 32.

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

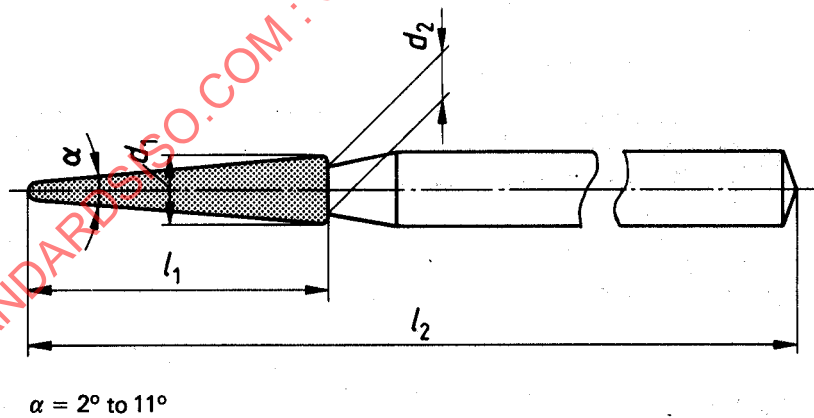


Figure 22

Table 22 — Dimensions

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

NOTE — For overall length l_2 see table 33.

5.23 Cylindrical with ogival end

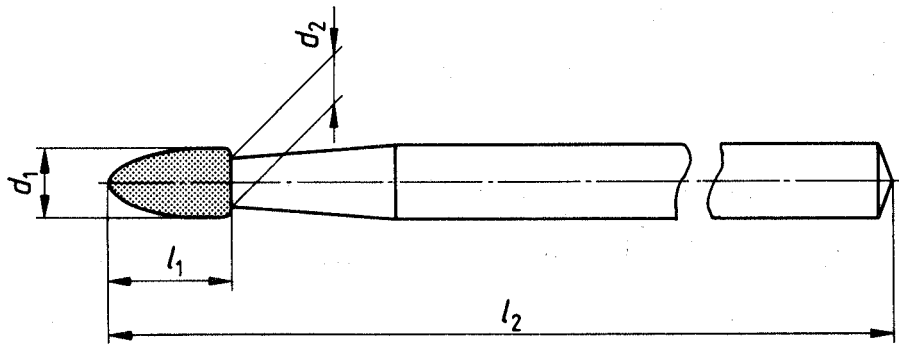


Figure 23

Table 23 — 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
021	2,1	4,0	1,70
023	2,3	4,0	1,80
025	2,5	4,0	1,85

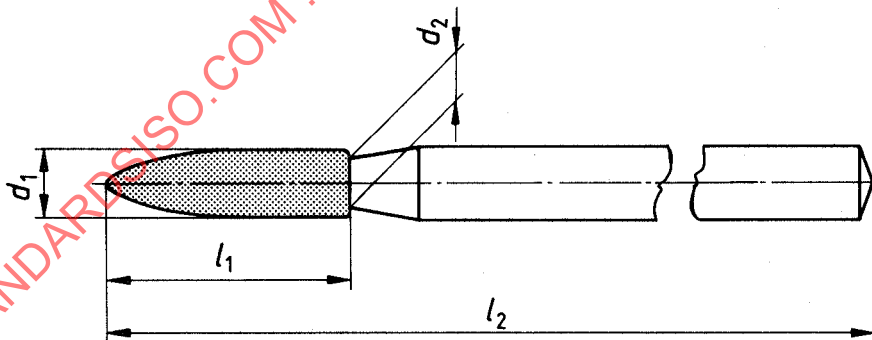
NOTE — For overall length l_2 see table 30.5.24 Cylindrical with ogival end, head length $7,5 \text{ mm} \leq l_1 < 9,5 \text{ mm}$ 

Figure 24

Table 24 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
010	1,0	$\geq 7,5$ $< 9,5$	1,00
012	1,2		1,20
014	1,4		1,35
016	1,6		1,50
018	1,8		1,60
021	2,1		1,70
025	2,5		1,85

NOTE — For overall length l_2 see table 32.

5.25 Cylindrical with ogival end, head length $9,5 \text{ mm} \leq l_1 < 11,5 \text{ mm}$

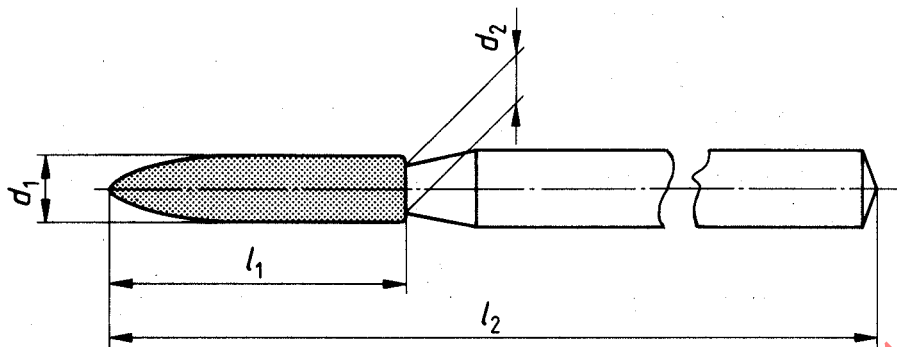


Figure 25

Table 25 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
012	1,2		1,20
014	1,4	$\geq 9,5$	1,35
016	1,6	$< 11,5$	1,50
025	2,5		1,85

NOTE — For overall length l_2 see table 33.

5.26 Inverted conical

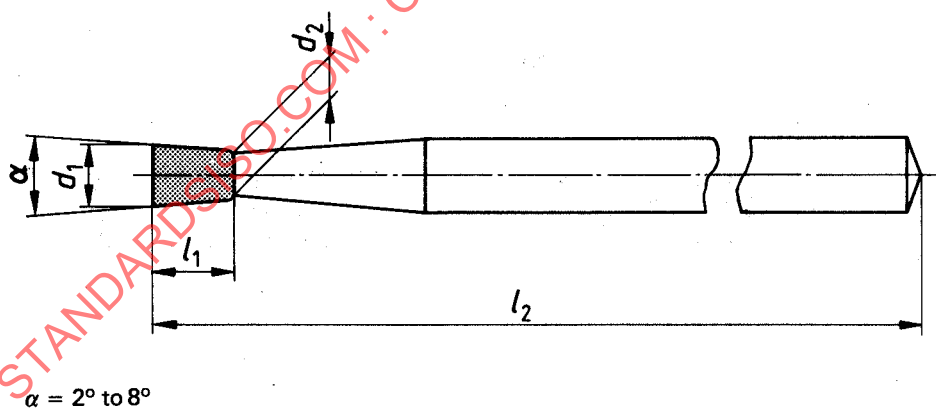


Figure 26

Table 26 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1 min.	d_2 max.
012	1,2	2,5	1,0
014	1,4	2,5	1,1
016	1,6	2,5	1,3
018	1,8	3,0	1,4
021	2,1	3,0	1,6
023	2,3	3,0	1,7

NOTE — For overall length l_2 see table 30.

5.27 Inverted conical, head length $5,5 \text{ mm} \leq l_1 < 6,5 \text{ mm}$

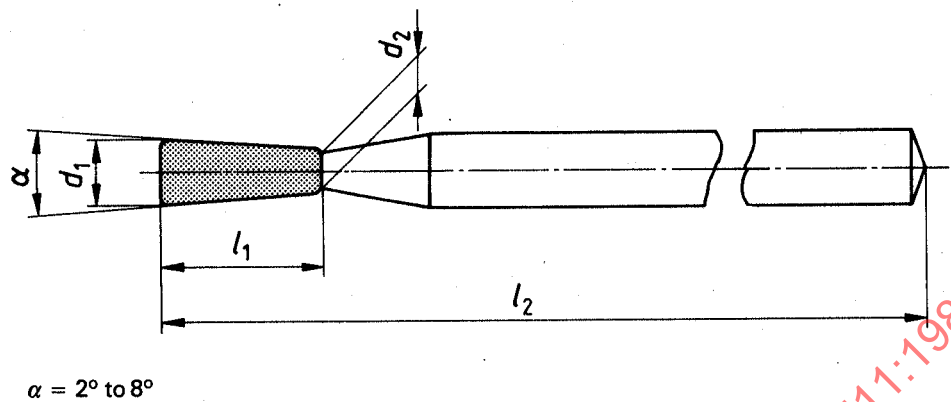


Figure 27

Table 27 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1	d_2 max.
021	2,1	$> 5,5$	1,6
023	2,3	$< 6,5$	1,7
025	2,5		1,8

NOTE — For overall length l_2 see table 31.

5.28 Hemispherical, inverted conical, truncated

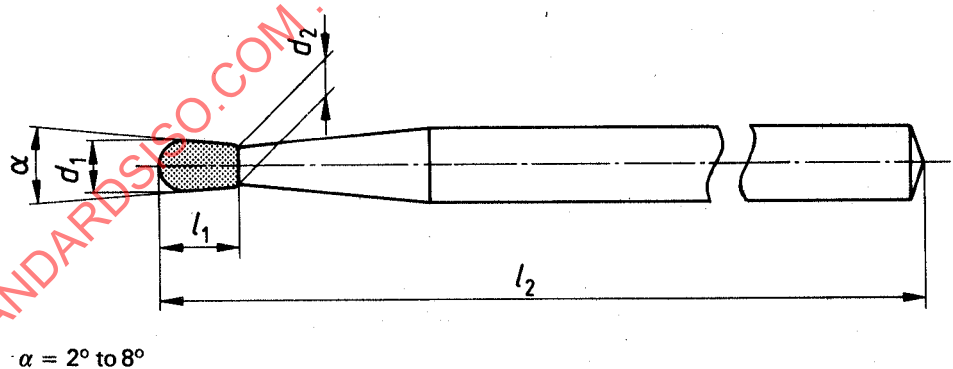


Figure 28

Table 28 — Dimensions

Nominal size	d_1 $\pm 0,1$	l_1 min.	d_2 max.
012	1,2	2,5	1,0
014	1,4	2,5	1,2
016	1,6	2,5	1,3

NOTE — For overall length l_2 see table 30.