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Technical drawings — Lettering — Part I : Currently used characters

Dessins techniques — Écriture — Partie I : Caractères courants

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 3098/1 was drawn up by Technical Committee ISO/TC 10, *Technical drawings*, and circulated to the Member Bodies in February 1973.

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It has been approved by the Member Bodies of the following countries :

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The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Bulgaria
U.S.A.

Technical drawings — Lettering — Part I : Currently used characters

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of lettering used on technical drawings and associated documents. It concerns primarily letters written with the aid of stencils, but is equally applicable to other methods of free-hand lettering.

2 GENERAL

2.1 The essential features of lettering on technical drawings are :

- legibility,
- uniformity,
- suitability for microfilming and other photographic reproduction.

2.2 In order to satisfy the above-mentioned requirements, the following rules shall be followed :

2.2.1 The characters are to be clearly distinguishable from each other in order to avoid any confusion between them, even in the case of slight mutilations.

2.2.2 Microfilming and other photographic reproductions require the distance between two adjacent lines or the space between letters or numerals to be at least equal to twice the line thickness (see the figure and tables 1 and 2). In cases where the thickness of two adjacent lines is different, the spacing shall be twice the thickness of the heavier line.

2.2.3 The line thickness for lower-case and capital letters shall be the same in order to facilitate lettering.

3 DIMENSIONS

The following specifications are given for the dimensions of letters and numerals :

3.1 The height h of the capital letters is taken as the base of dimensioning (see tables 1 and 2).

3.2 The range of standard heights h for lettering is as follows :

2,5 – 3,5 – 5 – 7 – 10 – 14 and 20 mm

The ratio of $\sqrt{2}$ in the range of heights for lettering is derived from the standardized progression of dimensions for paper sizes (A-series according to ISO/R 216, *Trimmed sizes of writing paper and certain classes of printed matter*).

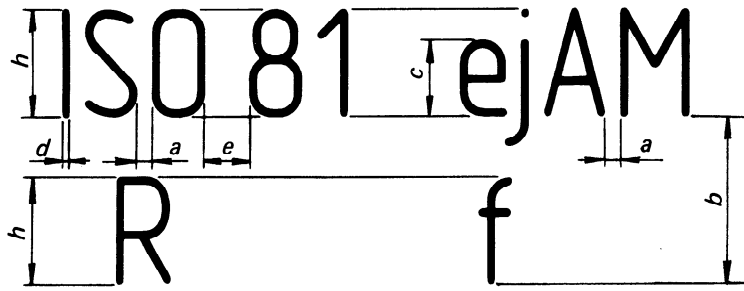
3.3 The heights h and c shall be not less than 2,5 mm.

NOTE — This means that when combining capitals and lower-case lettering and taking the value of 2,5 for c , h will be 3,5 mm.

3.4 The two standard ratios for d/h , 1/14 and 1/10, are most economical as they result in a minimum number of line thicknesses as is illustrated in tables 1 and 2.

Recommended ratios for the height of lower-case letters (without stem or tail), for the space between characters, for the minimum space of the base lines and the minimum space of words are given in tables 1 and 2.

3.5 The lettering may be inclined 15° to the right, or may be vertical (upright).



FIGURE

TABLE 1

Lettering A ($d = h/14$)

Values in millimetres

Characteristic	Ratio	Dimensions							
Lettering height	h	$(14/14) h$	2,5	3,5	5	7	10	14	20
Height of capitals	h	$(14/14) h$	2,5	3,5	5	7	10	14	20
Height of lower-case letters (without stem or tail)	c	$(10/14) h$	—	2,5	3,5	5	7	10	14
Spacing between characters	a	$(2/14) h$	0,35	0,5	0,7	1	1,4	2	2,8
Minimum spacing of base lines	b	$(20/14) h$	3,5	5	7	10	14	20	28
Minimum spacing between words	e	$(6/14) h$	1,05	1,5	2,1	3	4,2	6	8,4
Thickness of lines	d	$(1/14) h$	0,18	0,25	0,35	0,5	0,7	1	1,4

NOTE — The spacing a between two characters may be reduced by half if this gives a better visual effect, as for example LA, TV; it then equals the line thickness d .

TABLE 2

Lettering B ($d = h/10$)

Values in millimetres

Characteristic	Ratio	Dimensions							
Lettering height	h	$(10/10) h$	2,5	3,5	5	7	10	14	20
Height of capitals	h	$(10/10) h$	2,5	3,5	5	7	10	14	20
Height of lower-case letters (without stem or tail)	c	$(7/10) h$	—	2,5	3,5	5	7	10	14
Spacing between characters	a	$(2/10) h$	0,5	0,7	1	1,4	2	2,8	4
Minimum spacing of base lines	b	$(14/10) h$	3,5	5	7	10	14	20	28
Minimum spacing between words	e	$(6/10) h$	1,5	2,1	3	4,2	6	8,4	12
Thickness of lines	d	$(1/10) h$	0,25	0,35	0,5	0,7	1	1,4	2

NOTE — The spacing a between two characters may be reduced by half if this gives a better visual effect, as for example LA, TV; it then equals the line thickness d .

4 SPECIMENS

The following specimens are given only as a guide to illustrate the principles established in clauses 2 and 3. Special or typical characteristics of lettering (accents or any diacritical marks) according to various languages are not included in the examples but shall be designed on the same principles as specified in this International Standard.

Lettering A inclined

A B C D E F G H I J K L M N O P

Q R S T U V W X Y Z

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 a b c d e f g h i j k l m n o p q

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r s t u v w x y z

[! ? , ; " ' - = + x : √ ° % &] | Ø

0 1 2 3 4 5 6 7 7 8 9 I V X

1) Both of these characters are in accordance with the directives on lettering and a choice between the given possibilities is left to the national bodies.

NOTE – To obtain constant line-density, freedom from blotting at intersecting lines and ease of writing, the letters shall be formed so that lines cross or meet nearly at right angles.

Lettering A vertical

A B C D E F G H I J K L M N O P

Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q

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r s t u v w x y z

[(! ? ; " ' = + x : √ ° % &)] φ

0 1 2 3 4 5 6 7 7 8 9 I V X

1) Both of these characters are in accordance with the directives on lettering and a choice between the given possibilities is left to the national bodies.

NOTE – To obtain constant line-density, freedom from blotting at intersecting lines and ease of writing, the letters shall be formed so that lines cross or meet nearly at right angles.

Lettering B inclined

A B C D E F G H I J K L M N O P

Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q

r s t u v w x y z

[(! ? ; , ' - = + x : √ ° % &)] ø

0 1 2 3 4 5 6 7 7 8 9 I V X

1) Both of these characters are in accordance with the directives on lettering and a choice between the given possibilities is left to the national bodies.

NOTE — To obtain constant line-density, freedom from blotting at intersecting lines and ease of writing, the letters shall be formed so that lines cross or meet nearly at right angles.

Lettering B vertical

A B C D E F G H I J K L M N O P

Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q

r s t u v w x y z

[(! ? : ; " ' - = + x : √ ° % &)] φ

0 1 2 3 4 5 6 7 7 8 9 I V X

1) Both of these characters are in accordance with the directives on lettering and a choice between the given possibilities is left to the national bodies.

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