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Sewing machine needles — Fitting dimensions — Tolerances and combinations

Aiguilles de machines à coudre — Cotes d'ajustement — Tolérances et combinaisons

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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 8239 was prepared by Technical Committee ISO/TC 148, *Sewing machines*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Sewing machine needles — Fitting dimensions — Tolerances and combinations

1 Scope and field of application

This International Standard specifies the fitting dimensions of needles and needle holders for sewing machines. It defines general terms for sewing machine needles and specifies the tolerances for their fit in the needle holder of a sewing machine.

In addition to the ranges of dimensions for the nominal shank diameter and the length from butt to eye, this International Standard also indicates the preferred combinations of these two dimensions. In order to ensure the interchangeability and to reduce the variety of needles these should serve as a guide

when designing new sewing machines and/or sewing machine needles.

NOTE — Those tolerances and combinations at present in use but not given in this International Standard are still valid. Nevertheless the purpose is to limit the number of combinations and tolerances. When designing new sewing machines and/or sewing machine needles, they should be to these tolerances and combinations, the use of which will reduce the unnecessary variety now on the market.

2 Reference

ISO 286, *ISO system of limits and fits*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 shank diameter, a : Diameter of the upper part of a sewing machine needle for fitting it in the needle holder of a sewing machine (see figure 1).

3.2 blade diameter, d : Diameter at the cylindrical part of the needle blade above the short groove or scarf, but below any decrease or increase in cross-section of the blade (see figure 1). This diameter in millimetres multiplied by 100 corresponds to the metric size designation N_m , i.e. $N_m = 90$ designates a needle having a blade diameter of 0,9 mm.

3.3 length from butt to eye, l : Length of a sewing machine needle from the fixing end to the eye of the needle (see figure 2).

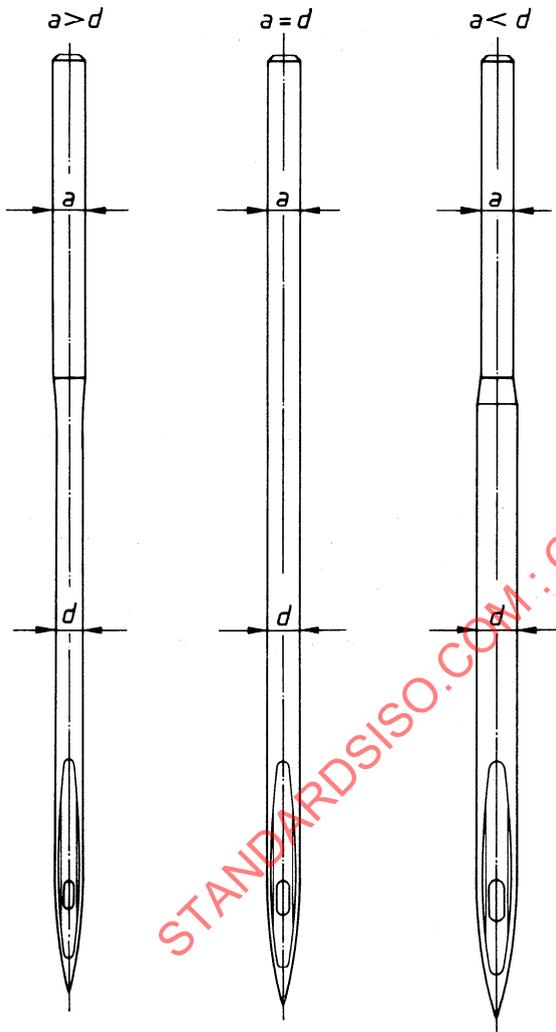


Figure 1 — Diameters of needles

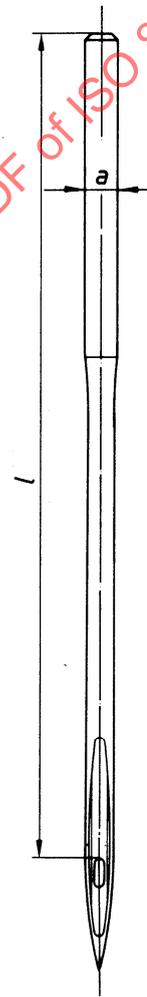


Figure 2 — Length from butt to eye of a needle

4 Fitting dimensions and tolerances

4.1 Shank diameter, a

4.1.1 For needles with $a < 1$ mm, consideration of the permissible deviations for blade diameter d is sufficient. This requirement applies to needles where shank diameter a and blade diameter d are the same in principle and which are generally clamped in prisms.

4.1.2 For needles with $a > 1$ mm, the tolerance zone h9 is required as specified in ISO 286. Accordingly, the permissible deviations in table 1 apply.

Table 1 — Permissible deviations for needles

Shank diameter a mm	Permissible deviation μm
$a < 1$	+ 20 - 20
$1 < a < 3$	0 - 25
$a > 3$	0 - 30

4.2 Needle holder

4.2.1 For needles with $a < 1$ mm, a prism-type fixing is intended.

4.2.2 For needles with $a > 1$ mm, a fixing in needle bar holes, prisms or similar is intended. For fixing in needle bar holes the tolerance zone E9 is required as specified in ISO 286. Accordingly, the permissible deviations in table 2 apply.

Table 2 — Permissible deviations for needle bar holes

Shank diameter a mm	Permissible deviation μm
$a < 1$	—
$1 < a \leq 3$	+ 39 + 14
$a > 3$	+ 50 + 20

5 Combinations

Sizes of shank diameter, a , and lengths from butt to eye, l , and their preferred combinations shall be as specified in table 3.

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