International Standard 1660

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Technical drawings — Dimensioning and tolerancing of profiles

Dessins techniques — Cotation et tolérancement des profils

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Foreword

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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 1660 was developed by Technical Committee ISO/TC 10, *Technical drawings*, and was circulated to the member bodies in August 1981.

It has been approved by the member bodies of the following countries :

Australia	France	Norway
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Belgium	Hungary	Romania
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China	Ireland	Spain
Czechoslovakia	Italy	Sweden
Denmark	Japan	Switzerland
Egypt, Arab Rep. of	Korea, Rep. of	USA
Finland	Netherlands	USSR

The member body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

This International Standard cancels and replaces ISO Recommendation R 1660-1971, of which it constitutes an updated version.

Technical drawings — Dimensioning and tolerancing of profiles

1 Scope and field of application

This International Standard describes two methods of dimensioning and tolerancing profiles, i.e. outlines in one plane only. It is related to sub-clause 14.5, "Profile tolerance of any line", of ISO 1101.

2 References

ISO 128, *Technical drawings — General principles of presentation.*

ISO 129, *Technical drawings — Dimensioning.*[1]

ISO 1101, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and run out — Generalities, definitions, symbols, indication on drawings.*

ISO 2692, *Technical drawings — Geometrical tolerancing — Maximum material principle.*[2]

ISO 5459, *Technical drawings — Geometrical tolerancing — Datums and datum systems for geometrical tolerances.*

3 Dimensioning

Profiles may be dimensioned by either of the following methods :

3.1 By giving the successive radii of curvature and sufficient dimensions to locate the corresponding elements of the curve (see figure 1).

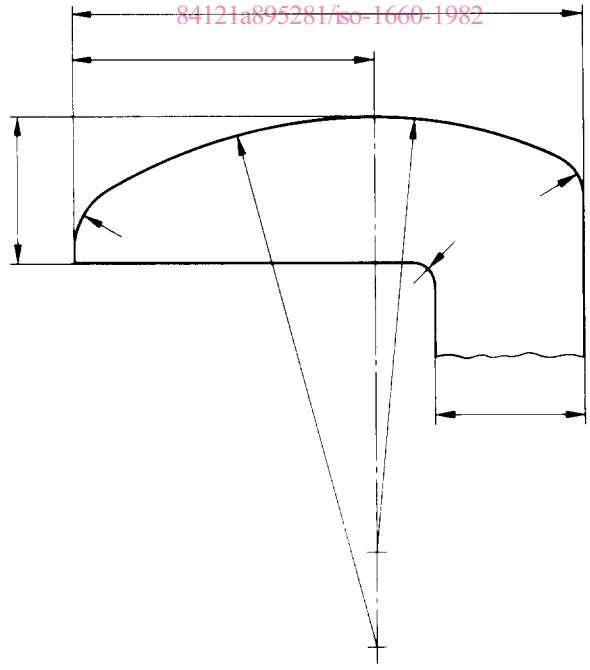


Figure 1

1) At present at the stage of draft. (Revision of ISO/R 129-1959.)

2) At present at the stage of draft. (Revision of ISO 1101/2-1974.)

3.2 By giving linear or polar coordinates of a series of points through which the profile passes (see figures 2 and 3).

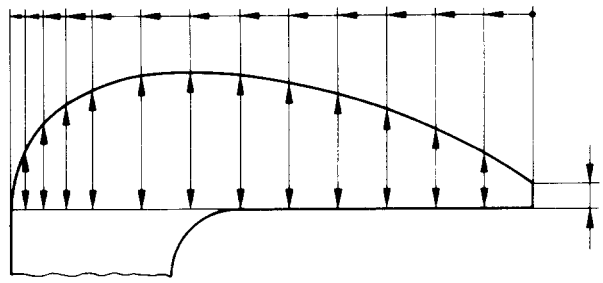
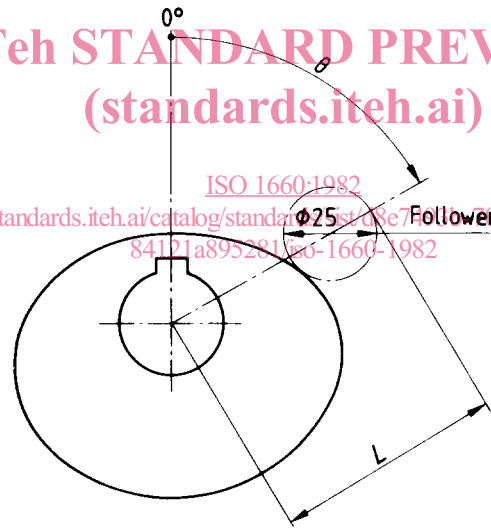


Figure 2

3.3 With either method it may be necessary to give the dimensions in association with a follower; the dimension L should then be indicated on the drawing (see figure 3).



θ	0°	20°	40°	60°	80°	100°	120 to 210°	230°	260°	280°	300°	320°	340°
L	50	52,5	57	63,5	70	74,5	76	75	70	65	59,5	55	52

Figure 3

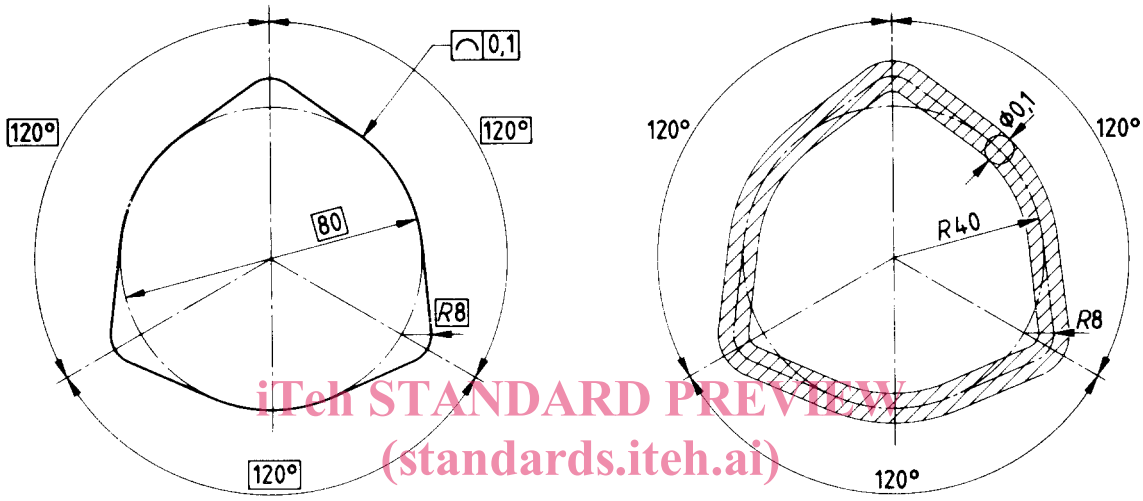
4 Indication of tolerances

The profile dimensions may be toleranced by either of the methods given below. The actual profile must be contained within the specified tolerance zone.

4.1 Method I

The tolerance zone is defined with respect to the true profile which is itself defined by theoretically exact dimensions. The tolerance zone is equally disposed on either side of the true profile.

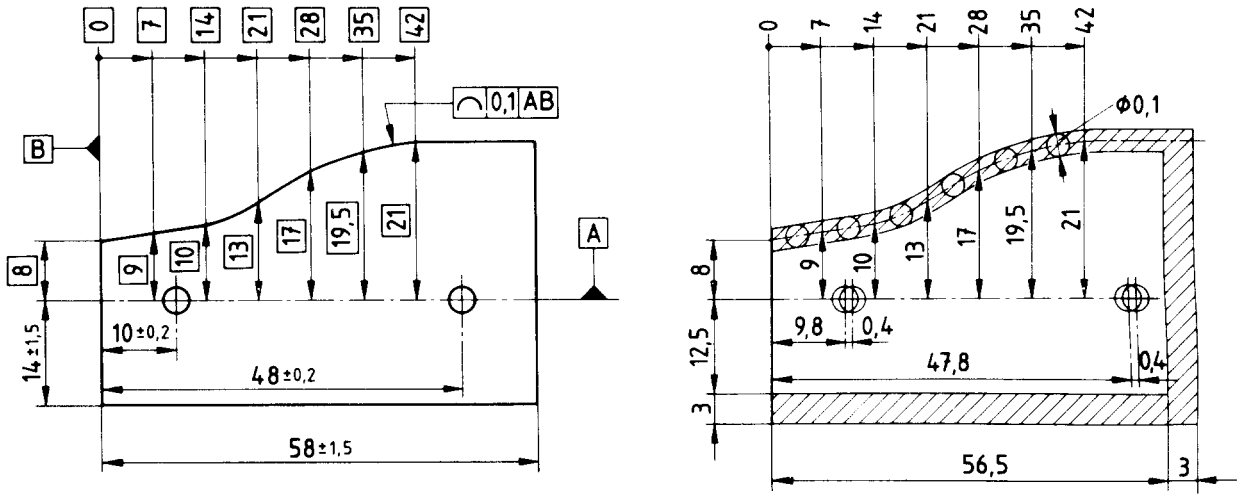
The width of the tolerance zone is uniform when measured normal to the true profile at any point (see figures 4 and 5).



a) Drawing information b) Drawing interpretation

Figure 4

The tolerance zone may be related to datum features to which the "maximum material principle" may be applied when required.



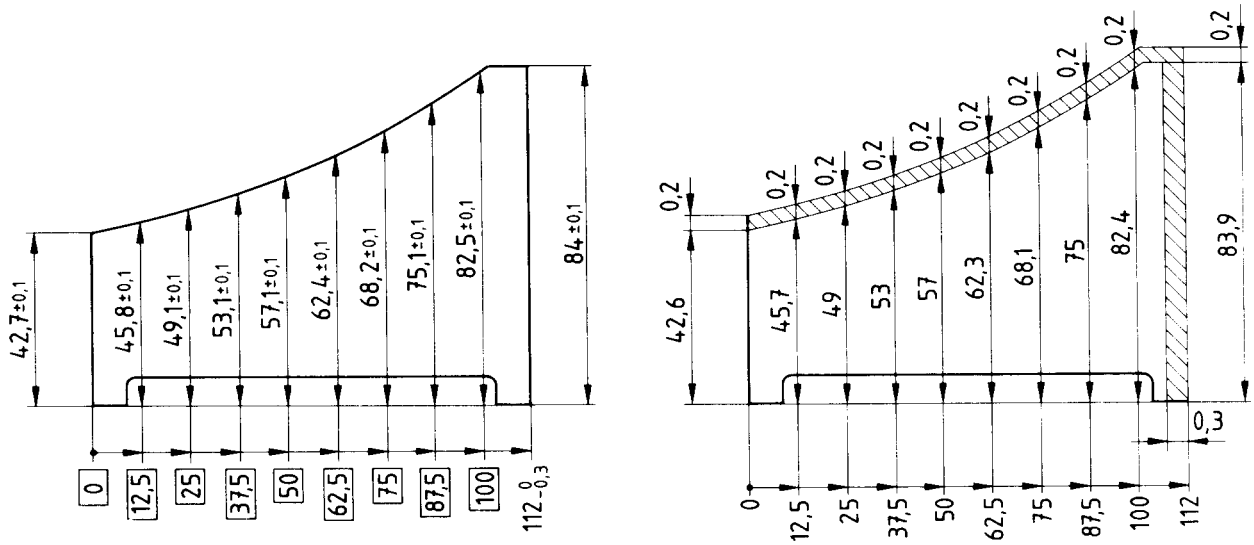
a) Drawing information b) Drawing interpretation

Figure 5

4.2 Method II

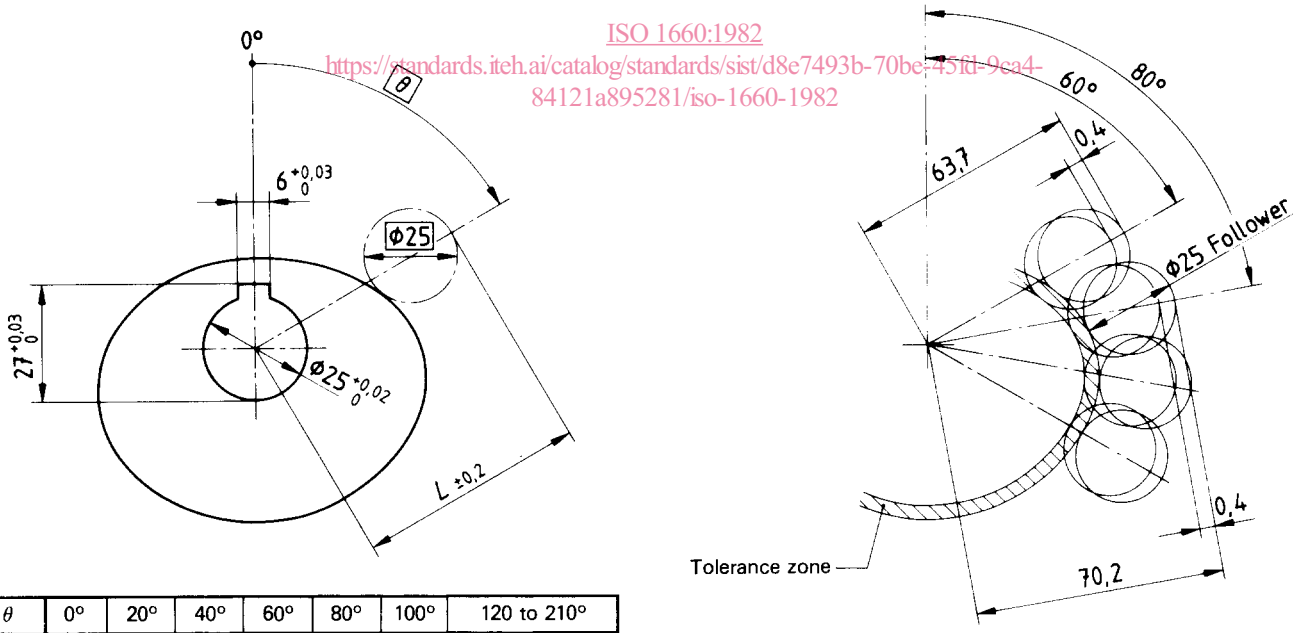
The ordinates along one axis are enclosed in frames to show that they are theoretically exact dimensions and the ordinates along the other axis are directly toleranced (see figures 6 and 7).

When measured normal to the true profile the width of the tolerance zone thus created varies with the contour.



a) Drawing information b) Drawing interpretation

Figure 6



θ	0°	20°	40°	60°	80°	100°	120 to 210°
L	50	52,5	57	63,5	70	74,5	76

θ	230°	260°	280°	300°	320°	340°
L	75	70	65	59,5	55	52

a) Drawing information b) Drawing interpretation

Figure 7

NOTE — If it is expedient and permissible to specify that a profile must fit a gauge or another component, this should be specified on the drawing.