

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1660

TECHNICAL DRAWINGS

TOLERANCES OF FORM AND OF POSITION

PART III

DIMENSIONING AND TOLERANCING OF PROFILES

1st EDITION

April 1971

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BRIEF HISTORY

The ISO Recommendation R 1660, *Technical drawings – Tolerances of form and of position – Part III : Dimensioning and tolerancing of profiles*, was drawn up by Technical Committee ISO/TC 10, *Drawings (General principles)*, the Secretariat of which is held by the Association Suisse de Normalisation (SNV).

Work on this question led to the adoption of Draft ISO Recommendation No. 1660, which was circulated to all the ISO Member Bodies for enquiry in September 1968. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Iran	Spain
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Czechoslovakia	Japan	Thailand
Denmark	Korea, Rep. of	Turkey
Finland	Netherlands	U.A.R.
France	New Zealand	United Kingdom
Germany	Norway	U.S.A.
Greece	Poland	U.S.S.R.
Hungary	Portugal	
India	Romania	

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

FOREWORD

This ISO Recommendation is a part of the following series :

ISO/R 1101, *Technical drawings – Tolerances of form and of position – Part I : Generalities, symbols, indications on drawings;*

ISO/R . . .*, *Technical drawings – Tolerances of form and of position – Part II : Maximum material principle;*

ISO/R 1660, *Technical drawings – Tolerances of form and of position – Part III : Dimensioning and tolerancing of profiles;*

ISO/R 1661, *Technical drawings – Tolerances of form and of position – Part IV : Practical examples of indications on drawings.*

* In preparation.

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TECHNICAL DRAWINGS TOLERANCES OF FORM AND OF POSITION

PART III DIMENSIONING AND TOLERANCING OF PROFILES

INTRODUCTORY NOTE

For uniformity all the linear dimensions given in this ISO Recommendation are in metric units only and the figures are in projection method E (called European or first angle projection). It should be understood that inch units and/or projection method A (called American or third angle projection) could equally well have been used without prejudice to the principles established.

1. SCOPE

This ISO Recommendation describes two methods of dimensioning and tolerancing profiles, i.e. outlines in one plane only. It is related to clause 5.5, *Profile tolerance of any line*, of ISO Recommendation R 1101, *Technical drawings – Tolerances of form and of position – Part I : Generalities, symbols, indications on drawings*.

2. DEFINITION

Datum dimension. A dimension which locates a point, line or plane exactly. It is enclosed in a frame, thus 30 (see ISO Recommendation R 1101, clause 4.9). It may also be used to specify the position of an ordinate or a point which establishes a true profile.

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).

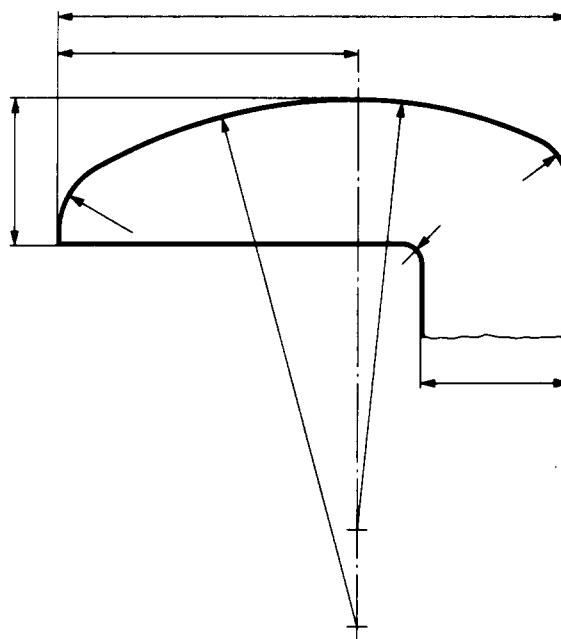


FIG. 1

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

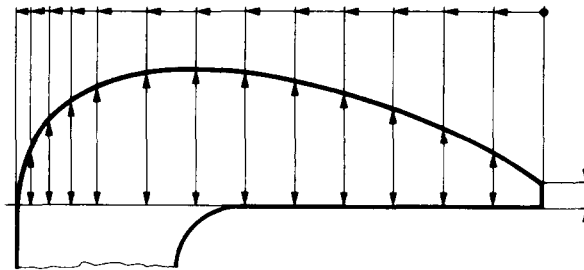
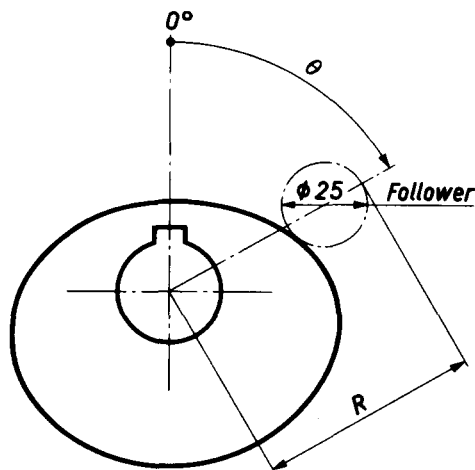


FIG. 2

- 3.3 With either method it may be necessary to give the dimensions in association with a follower; the dimension R 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°
R	50	52.5	57	63.5	70	74.5	76	75	70	65	59.5	55	52

FIG. 3

4. INDICATION OF TOLERANCES

The profile dimensions may be tolerated 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 datum 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).

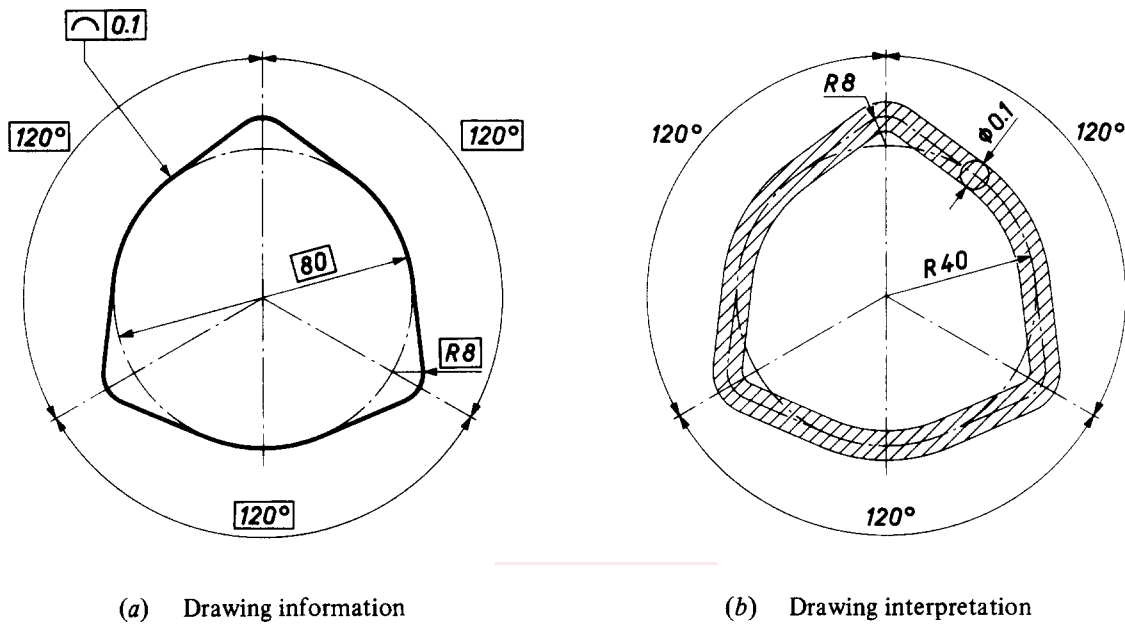


FIG. 4

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

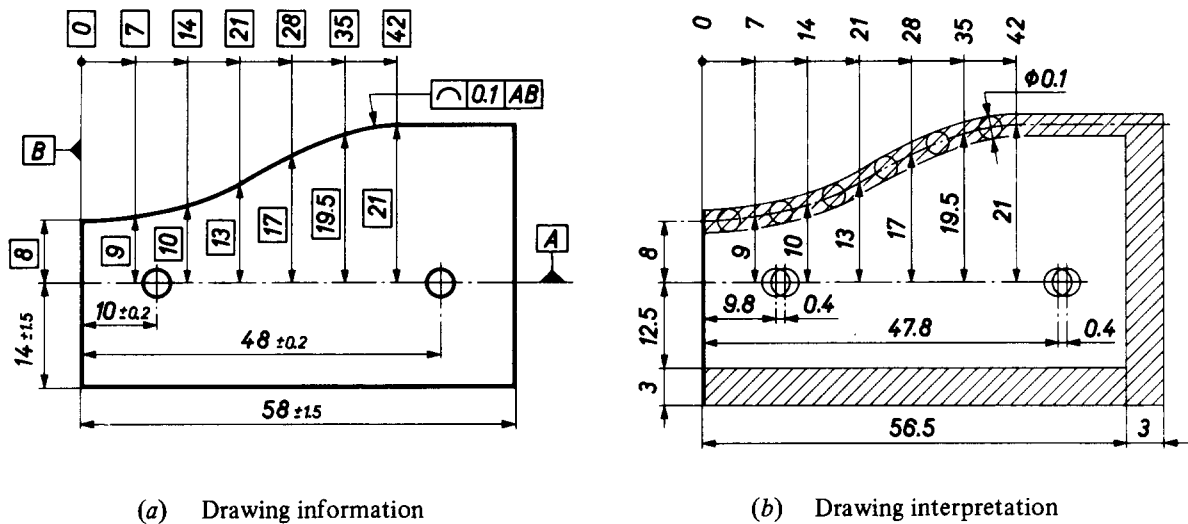


FIG. 5