DRAFT AMENDMENT ISO 1302:2002/DAmd 2

ISO/TC **213** Secretariat: **DS**

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Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation

AMENDMENT 2: Indication of material ratio requirements

Spécification géométrique des produits (GPS) — Indication des états de surface dans la documentation technique de produits

AMENDEMENT 2: Indication des exigences pour le taux de longueur portante

ICS 01.100.20; 17.040.20

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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Amendment 2 to ISO 1302:2002 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

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Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation

AMENDMENT 2: Indication of material ratio requirements

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Add the following annexes before the Bibliography:

Annex K
(informative)

Indication of material ratio requirements

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K.1 Data included in material ratio requirements

A surface texture requirement is constructed from a number of different control elements that may be part of the indication on the drawing or part of text indication in other documents. The elements are shown in K.2 for the material ratio of the *R*- and *W*-profiles and in K.4 for the material ratio of the P-profile.

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Experience has shown that all these elements are necessary in order to establish an unambiguous relationship between the surface texture requirement and the function of the surface. Most of these features are also necessary in order to set the measuring instrument. Others are necessary in order to obtain an unambiguous evaluation of the result of the measurement and for comparison with the specification limit(s).

In order to simplify the indication of surface texture requirements and to maintain the unambiguous relationship between drawing indication and the function of the surface, a number of default conditions have been defined. These conditions apply if no indication is made on the drawing. The default conditions result in simpler surface texture indications. However, the principle concerning default definitions has not been completed for all parameters. Standards ISO 3274:1996, ISO 4287:2002, and ISO 4288:1996 contains information on default definitions if such exist.

In those cases when no default definitions exist, complete information on, for example, the interpretation of specification limit(s), transmission band and evaluation length shall be given in the indication of the surface texture requirement on the drawing in order to make the requirement unambiguous and meaningful.

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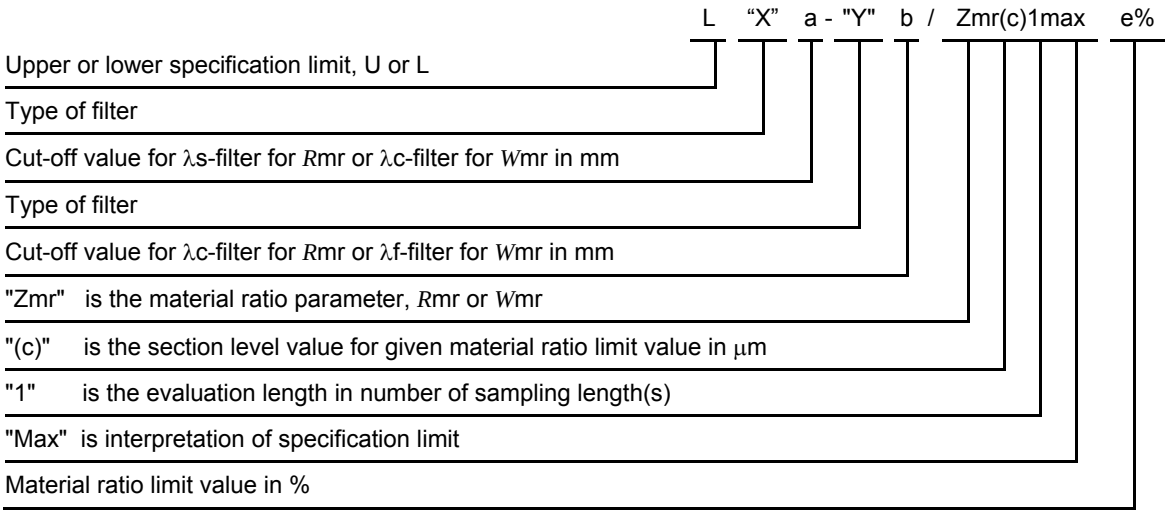
K.2 Indication of material ratio parameters for *R*- and *W*-profiles

K.2.1 Indication of material ratio requirement with no reference level for *R*- and *W*- profiles

Indication of material ratio requirement with no reference level for *R*- and *W*- profiles is performed as below.



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K.2.2 Indication of material ratio requirement with no reference level for *R*- and *W*- profiles

Indication of material ratio requirement with no reference level for *R*- and *W*- profiles is performed as below.

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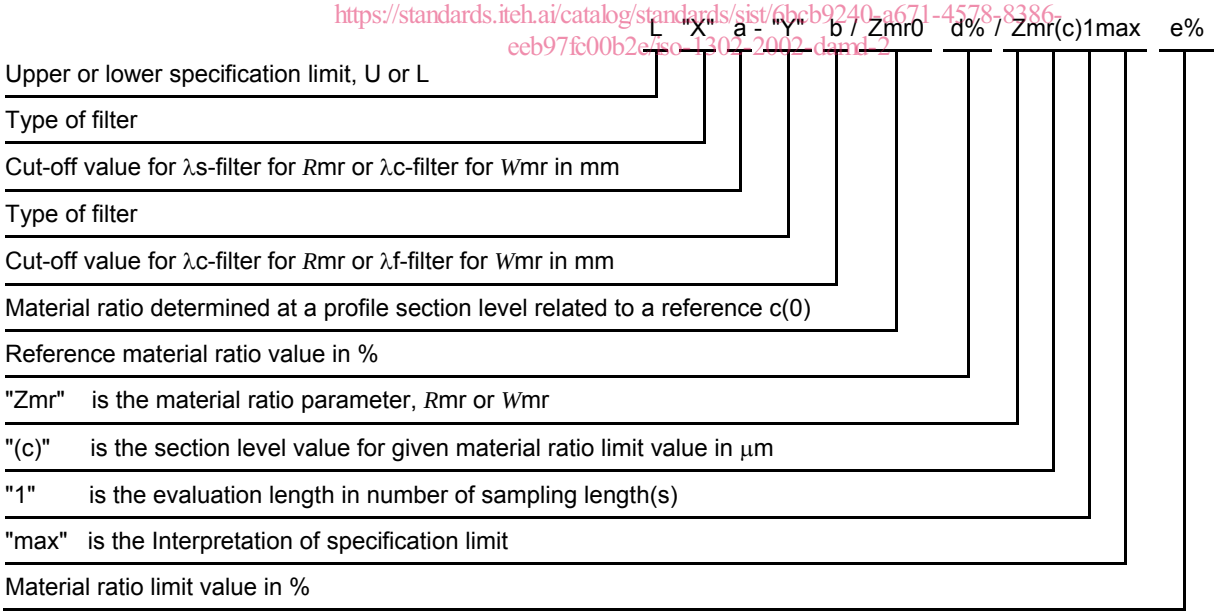

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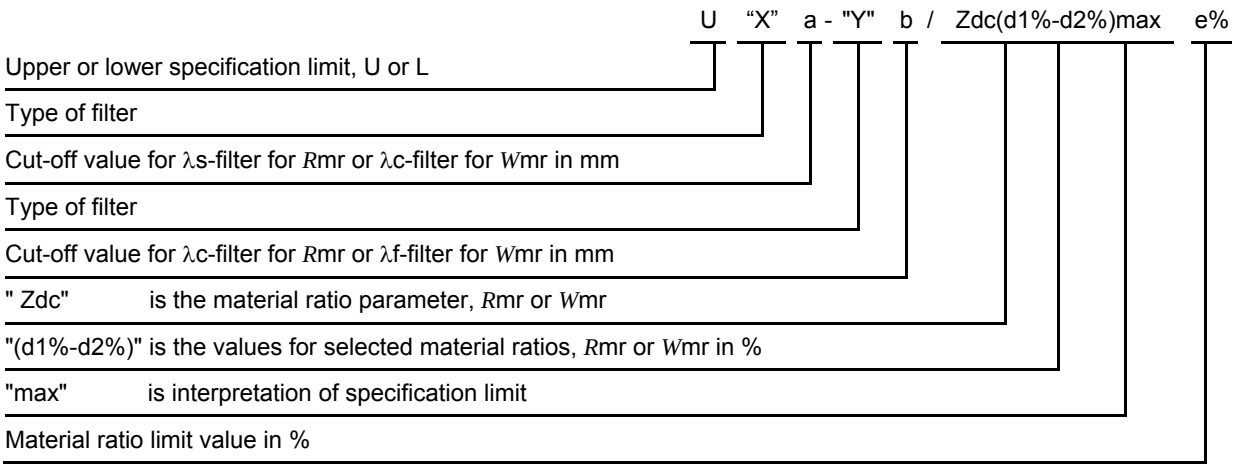
K.2.3 Indication of material ratio requirement with indication of reference level for *R*- and *W*-profiles.

Indication of material ratio requirement with indication of reference level for *R*- and *W*- profiles is performed as below.



K.3 Indication rules for *R*- and *W*-profiles

Indication of upper or lower specification limit; shall always be used as contrary to other surface texture parameters *R*mr and *W*mr are normally specified with their lower limit. For conformance this applies also to the specification of *R*dc and *W*dc which are normally specified with their upper limit.

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The default filter type is the Gaussian standardized and need not be indicated. Formerly, the 2RC filter was standardized. Other filter types are under standardisation in the standard series ISO 16610. If needed the filter types can be indicated as "Gaussian" or "2RC".

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Transmission band is indicated as the values of the cut-offs of a short-wave and a long-wave filter. For *R*-parameters, there is a default choice of cut-off of long-wave filter and through this also a default choice of cut-off of short-wave filter and thus need not be indicated. For *W*-parameters, there are no default filters and, for this reason, they shall always be indicated. If *R*-parameters are also specified, the default is that *R*-parameter λs-filter also applies to the *W*-profile and thus need not be indicated.

Evaluation length is indicated as a function of the number of sampling lengths where one sampling length equals the numerical value of the cut-off of the long-wave filter. For the *R*-profile, the default number is 5 and need not be indicated. For the *W*-profile, the evaluation length shall always be indicated.

For specification limit interpretation either the 16 % rule or the max rule applies. The default is the 16 % rule, which thus need not be indicated. If, on the other hand, the max rule is to apply, this shall be specified as shown in K.4.

The limit value for material ratio tolerance is expressed in %. This means that the share of material at the given level shall at least correspond to the indicated value in per cent of the evaluation length.

Unless otherwise stated, the reference level shall be specified as a material ratio value in percent at which the reference level *R*mr0 or *W*mr0 is placed. If no reference level is specified, section level c is determined from material ratio 0 % or, expressed in a different way, from the highest peak within the evaluation length. If the mean line is intended as a reference this can be indicated by setting the reference level c to 50%

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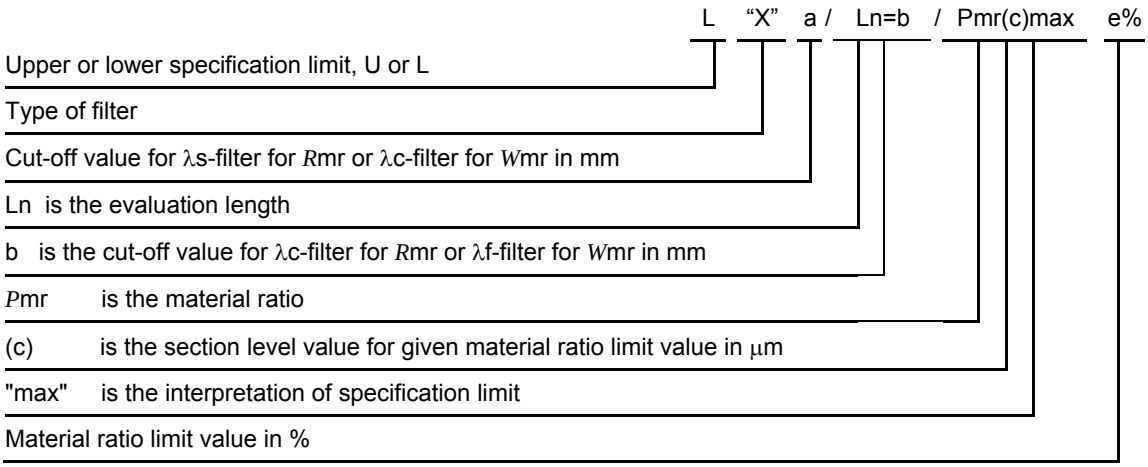
K.4 Indication of material ratio parameters for *P*-profiles

K.4.1 Indication of material ratio requirement with no reference level for *P*- profiles

Indication of material ratio requirement with no reference level for *P*- profiles is performed as shown as below.



K.4.2 Indication of material ratio requirement with reference level for *P*- profiles

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Indication of material ratio requirement with reference level for *P*- profiles is performed as below.

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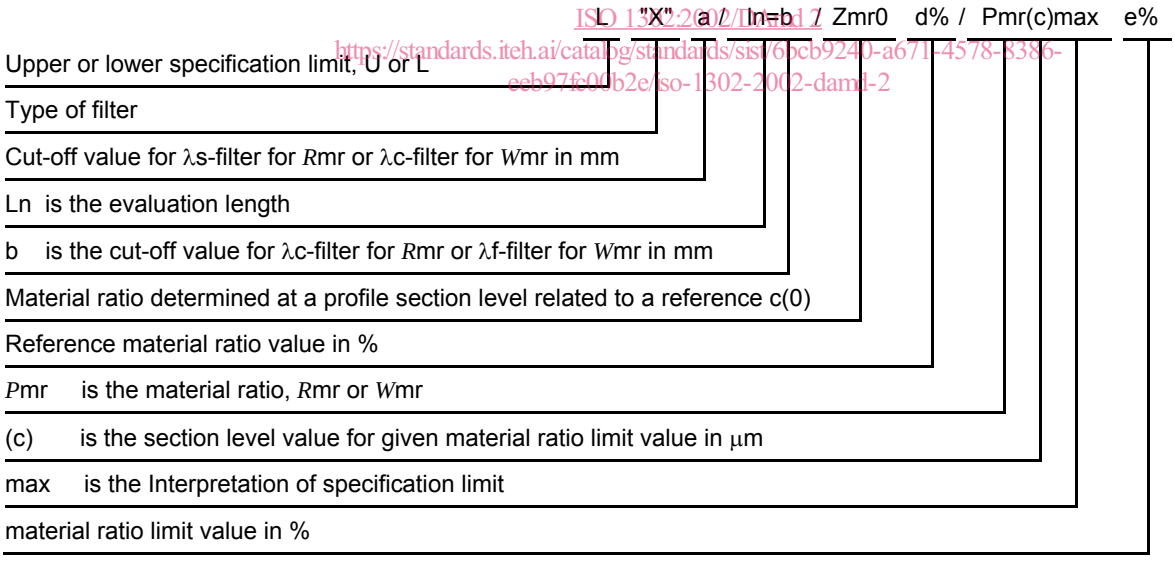

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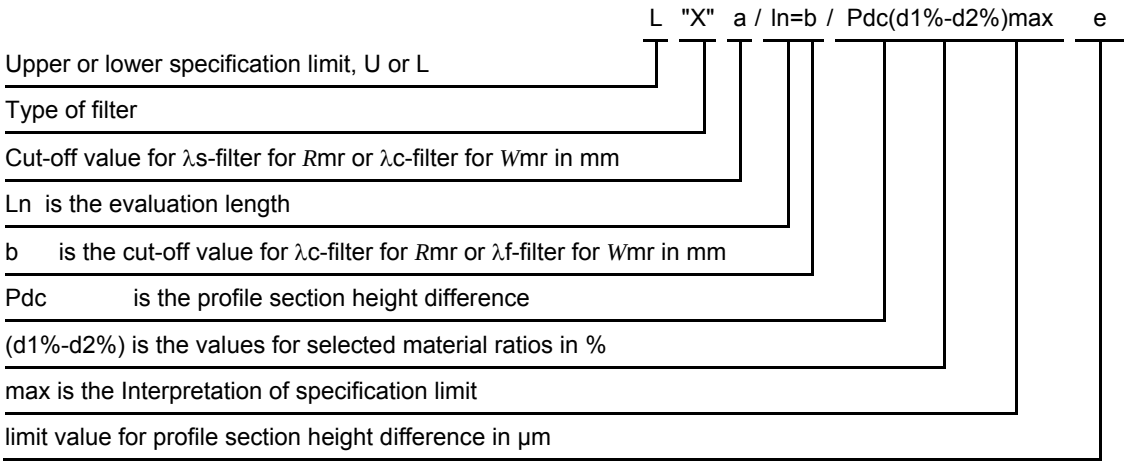
K.4.3 Indication of profile section height difference requirement for *P*- profiles

Indication of profile section height difference requirement for P- profiles is performed as below.



K.5 Indication rules for *P*-profiles

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Indication of upper or lower specification limit, shall always be used as contrary to other surface texture parameters *P*mr is normally specified with its lower limit. For conformance this applies also to the specification of *P*dc which is normally specified with its upper limit.

The default s-filter type is the Gaussian standardized and need not be indicated.

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Short-wave filter for the reduction of noise should always be indicated.

NOTE If not indicated the default cut-off is determined by the stylus radius of the instrument used in verification.

If *R*-parameters are also specified, the default is that *R*-parameter λs-filter also applies to the *P*-profile and thus need not be indicated. For *P*-profiles there is no long-wave filter, instead the upper limit is specified as the size of the evaluation length, the maximum of which is the length in the measuring direction of the assessed surface.

Evaluation length is chosen according to the functional intention and shall always be indicated.

For specification limit interpretation either the 16 % rule or the max rule applies. The default is the 16 % rule, which thus need not be indicated. If, on the other hand, the max rule is to apply, this shall be specified as shown in K.4.

The limit value for material ratio tolerance is expressed in %. This means that the share of material at the given level shall at least correspond to the indicated value in per cent of the evaluation length.

Unless otherwise stated, the reference level shall be specified as a material ratio value in percent at which the reference level *R*mr0 or *W*mr0 is placed. If no reference level is specified, section level c is determined from material ratio 0 % or, expressed in a different way, from the highest peak within the evaluation length. If the mean line is intended as a reference this can be indicated by setting the reference level c to 50%

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