JAPANESE INDUSTRIAL STANDARD

JIS B 0401-1986

System of limits and fits

1995. 2.

ERRATA

Page	Position	Wrong	Correct
23	Formula, Position of tolerance zone "ef" of Shaft in Appendix 1 Table 5	Geometrical mean of values for E and F or f and g	Geometrical mean of values for E and F or e and f
23	Formula, Position of tolerance zone "fg" of Shaft in Appendix 1 Table 5	Geometrical mean of values for F and G or e and f	Geometrical mean of values for F and G or f and g

Remarks: This errata is for correcting the fourth edition of this Standard.

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System of Limits and Fits

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JAPANESE INDUSTRIAL STANDARD J I S

System of Limits and Fits B 0401-1986

1. Scope

This Japanese Industrial Standard specifies the system of limits and fits of features having basic sizes up to 3150 mm including.

Remarks 1. The limit system of this Standard mainly deals with the cylindrical features but also can be applied to features other than the cylinder.

2. The fit system of this Standard applies only to fits of simple geometrical forms, such as cylindrical features, or the feature containing or contained by two parallel planes, etc.

3. When there is a standard (1) specifying the limit system for specific working method, that standard may be applied, or when special precision is not required for practical function, the permissible deviations without tolerance indication (2) may be applied.

Notes (1) For example, JIS B 0415.

(2) For example, JIS B 0405.

2. Definitions

The definitions of principal terms used in this Standard shall be as follows:

(1) feature The portion of a mechanical part to which the system of limits and fits is applied.

(2) internal feature Feature forming the inside of an object.

(3) external feature Feature forming the outside of an object.

Applicable Standards, Corresponding International Standard and Reference Standards: See page 38.

(4) hole This refers mainly to the cylindrical internal feature but also includes the internal feature with a non-cylindrical section.

(5) shaft This refers mainly to the cylindrical external feature but also includes the external feature with a non-cylindrical section.

(6) size Quantity expressing magnitude of a feature. For example, diameters of a hole and a shaft and it is, in general, expressed in the unit of mm.

(7) actual size Size of feature as practically obtained.

(8) limits of size The two extreme permissible sizes of a part determined so that the actual size should lie between them, i.e., the maximum limit of size and the minimum limit of size (Fig. 1).

(9) maximum limit of size The largest size permissible to the feature (Fig. 1).

(10) minimum limit of size The smallest size permissible to the feature (Fig. 1).

(11) basic size Size to be referred to as the standard to which the upper and lower deviations are assigned to form the limits of size (Fig. 1 and Fig. 2).

Remark: The basic size shall be expressed by integers or decimals.

Example: 32, 15, 8.75, 0.5

(12) deviations Algebraical difference between the size (the actual size, the limits of size, etc.) and the corresponding basic size, i.e., (size) - (basic size).

(13) limit system System of standardized tolerances and deviations.

(14) upper deviation Algebraical difference between the maximum limit of size and the corresponding basic size, i.e., (maximum limit of size) - (basic size) (Fig. 1 and Fig. 2).

Remark: The upper deviation of the hole shall be indicated by symbol *ES* and that of the shaft by symbol *es* (see 4.1.4).

(15) lower deviation Algebraical difference between the minimum limit of size and the corresponding basic size, i.e., (minimum limit of size) - (basic size) (Fig. 1 and Fig. 2).

Remark: The lower deviation of the hole shall be indicated by symbol *EI* and that of the shaft by symbol *ei* (see 4.1.4.).

(16) tolerance Difference between the maximum limit of size and the minimum limit of size, i.e., the difference between the upper deviation and the lower deviation (Fig. 1 and Fig. 2).

(17) zero line In a graphical representation of limits and fits, straight line which represents the basic size, and to which the deviations are referred (Fig. 1 and Fig. 2).

(18) fundamental deviation The deviation which defines the position of the tolerance zone in relation to the zero line. It is either the upper deviation or the lower deviation and ordinarily the one nearer to the zero line.

(19) standard tolerance Any tolerance belonging to this system of limits and fits.

Remark: The standard tolerance shall be indicated by symbol *IT*.

(20) grade of tolerance In this system of limits and fits, a group of tolerances belonging to the same level of accuracy for all basic sizes.

Remark: The grade of tolerance shall be indicated by the symbol IT followed by a number representing the grade, for example, IT 7.

(21) tolerance zone In a graphical representation of tolerances, zone comprised between two lines representing the maximum and minimum limits of size and defined by the magnitude of the tolerance and by its position in relation to the zero line (Fig. 2).

(22) tolerance zone class Combination of the position of a tolerance zone and the grade of the tolerance.

Fig. 1