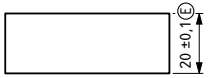
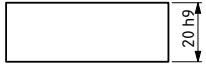
Linear size (the diameter of a cylinder or the distance between two parallel flat opposite surfaces). ISO 129, ISO 286-1, ISO 1938, ISO 8015 and ¤ISO 14405.

Two methods for unambiguous tolerancing of size exist. The two methods do not result in the same tolerance limits:

Method #1 - ISO 8015, ±tolerances and envelope requirement Ⓔ

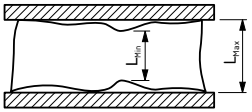


Method #2 - ISO 286-1 and ISO/R 1938 - Tolerance code

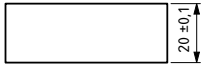


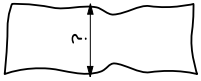
Explanations:

L ≤ Lmax, distance between two parallel tangential planes or the diameter of the minimum circumscribed cylinder. L ≥ Lmin, two-point distance or diameter. The two-point distance/diameter and the direction are defined in ISO 14660-2.



Linear size indicated by ±tolerance without indication of operator
A linear size indicated by a ±tolerance without supplementary indication (modifier symbol) according to method 1 or 2 above is not defined on the real work piece.

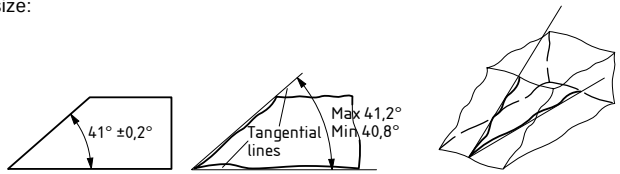




¤ISO 14405 will include a number of symbols (modifiers) in addition to Ⓔ, which can specify which diameter definition (specification operator) is required by the drawing, e.g.: Ⓛ, Ⓢ, Ⓖ, Ⓧ and Ⓝ.

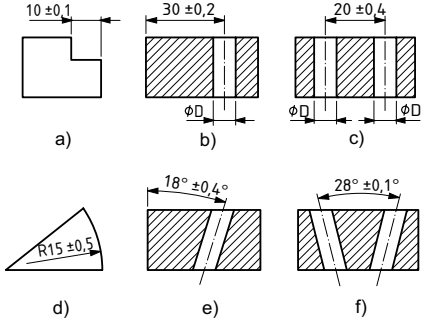
Angular size - ISO 8015 (The definition is only active if a reference is made to ISO 8015 on the drawing - otherwise angular size has no operator definition). The angle between two tangential lines in the surfaces.

Angular size between two flat opposing surfaces of approximately the same size:



Dimension indication for non linear size

All other types of dimensions, except size, with ± tolerances, see examples a) through f), are not defined on the real work piece. The result is specification uncertainty. Dimension tolerancing with ± tolerances, therefore, should not be used on new drawings. Use geometrical tolerances instead.



a Linear distance between two integral features (step height)
b Linear distance between an integral and a derived feature
c Linear distance between two derived features
d Radial distance for an integral or a derived feature
e Angular distance between an integral and a derived feature
f Angular distance between two derived features