DIMENSIONING
DIMENSIONS

Functional Dimensions (Should be Toleranced)

Non-Functional Dimensions (General Tolerances)

Auxiliary Dimensions (Should not be tolerated)
Bilateral tolerance

32 ± 0.2

32.195

32.198

Unilateral tolerance

32 - 0.2

30.5 mm
Examples:
for holes: 45 H8
for shafts: 40 F7
for fits: 40 H8/ F7

Basic Size
Tolerance Grade
Functional, non-functional, and auxiliary dimensions
Linear Dimensions

Size Dimensions

Location Dimension
Manufacturing Stages (from dimensioning point of view)

• Primary Stages of the Production (Req. Dimensioning for primary production)

• Secondary Stages of the Production (Req. Dimensioning for secondary production)
Fig 03 Dimensioning for fabrication
Fig. D2
Dimensioning for sand casting
Fig. 04
Dimensioning for machining

Surface texture symbols
(Machining Symbols)
PLACEMENT OF DIMENSIONS

Some cautions should be taken into consideration while dimensioning:

1. Dimensions outside the view are preferred.
2. Dimensions should be applied to one view.
3. Dimensions should be placed on the view that shows the distance in its true length.
4. Dimension lines should be placed, in general 10 mm (1/2 in) away from the outlines of the view.
5. Parallel dimension lines should be placed uniformly.
6. Values should be midway (auto centered) between the arrow heads, except when a centerline interferes.
7. Dimensions arranged in continuous form are preferred upon readability.
8. Place a longer dimension line outside a shorter one.
9. Dimensions should never be crowded.
10. Center lines are used to indicate the symmetry, they should be considered as part of dimensioning.
11. All notes must be read horizontally.
12. Never use a center line, a line of a view, or an extension line as a dimension line.
13. Never allow outline of any kind to pass through a dimension line.
14. Avoid dimensioning to dashed lines if possible.
Omit unnecessary dimensions!
Toleranced Dimensions
Chain Dimensioning
Datum Dimensioning
Methods of Dimensioning of Cylinders:

or

\[ \text{SI} \quad \text{British} \]
Avoid placing dimensions in the crosshatched area!
Method of Dimensioning of a Square Prism:

-or-

1 square
60

or sq.

2.5

SI

British
Dimensioning of a Sphere:

sphere 30

Sphere 10

Sphere R10
Representation of Holes

Simple Hole

SI rep.

British 10 Drill

φ10
Blind Hole

\[ \phi 10, \frac{3}{4} 15 \]

SI rep.

\[ \text{in British system} \]

\[ \text{be} \]

10 Drill, 15 Deep

2/12/2014
Small Tools
Counterbored Hole

Spot faced Hole

be 10 drill - 18 bore, 5 deep in British system

\[ \phi 10, L \parallel \phi 15, \pm 2 \]
Counter sink Hole

\( \phi 10, \sqrt{\phi 18}, 70^\circ \)

be

10 Drill - 70\(^\circ\) c'sink, 18 dia.
Method of Dimensioning Radii

SI

if there is a free space to indicate the dimension

if no
Dimension line is always directed towards the center of the arc and should be finished with one arrowhead only that touches the curve.
Dimensioning of a Tapered Feature:
Dimensioning of a Chamfer:

4 x 40°

or

40°
Dimensioning Repeated Features:

8x Ø10 EQSP
be 3/8 Drill, 8 Holes
British

2x Ø10

3x Ø6