The symbol is placed either above or beneath the reference line, in accordance with the following (Fig. 5.42):

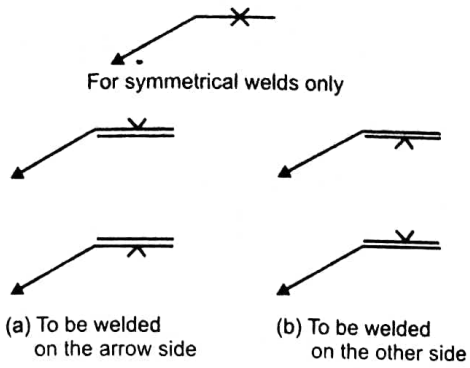

Fig. 5.42. Position of symbols according to the reference line

(a) The symbol is placed on the continuous line side of the reference line if the weld (weld face) is on the arrow side of the joint.

(*b*) The symbol is placed on the dashed line side if the weld (weld face) is on the other side of the joint.

DIMENSIONING OF WELDS

Each weld symbols may be accompanied by a certain number of dimensions, written as follows (Fig. 5.43) :

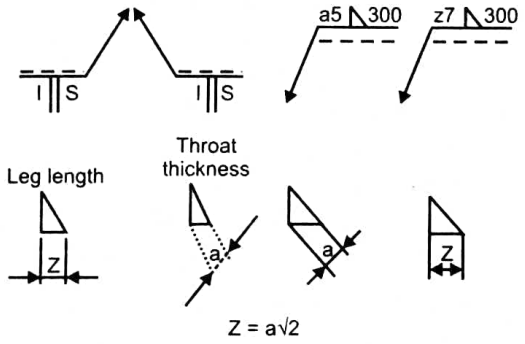

Fig. 5.43. Methods of indicating dimensions of fillet weld

(*a*) The main dimensions relative to the cross section are written on the left-hand side (that means before) of the symbol

(*b*) Longitudinal dimensions are written on the right-hand side (that means after) of the symbol.

For fillet welds, there are two methods to indicate dimensions. Therefore, the letters a and z are always placed in front of the value of the corresponding dimension.

COMMON TERMS [IS:812-1957]

Fusion Penetration : The depth to which the parent metal has been fused. (Fig. 5.44).

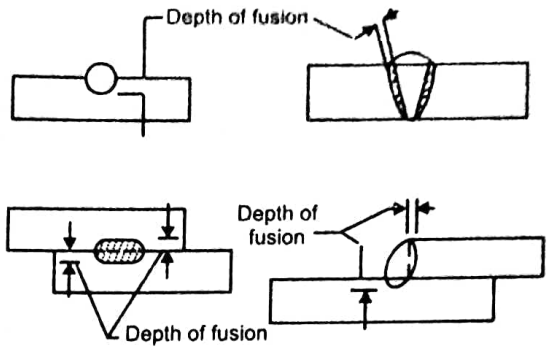

Fig. 5.44. Fusion penetration

Fusion zone : The portion of a weld in which parent metal has been fused.

Heat-affected Zone : Parent metal metallurgically affected by the heating of welding (or cutting), but neither melted nor made plastic. (Fig. 5.45).

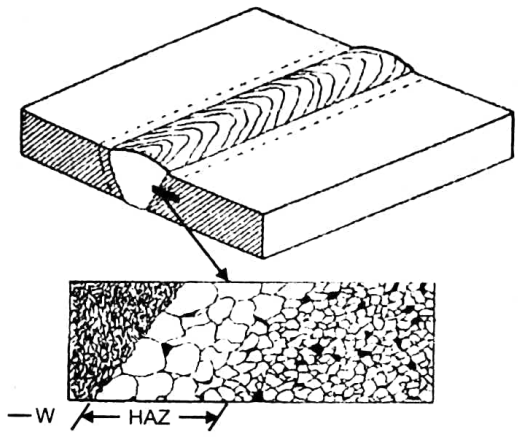

Fig. 5.45. Typical microstructures in the heat-affected zone of a butt weld

Weld Metal Zone : The portion of a weld consisting of weld metal.

Weld Zone : The sum of the weld-metal zone and the heat-affected zone.

Weld : A union between two pieces of metal at faces rendered plastic or liquid by heat or by pressure, or both. Filler metal may be used to effect the union. (Fig. 5.46).

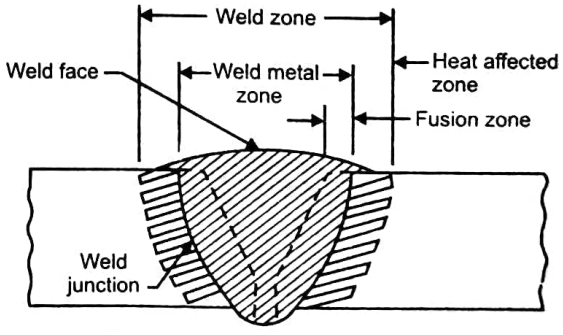

Fig. 5.46. Various zones for a typical weld

Leg Length : It is the length of the fusion face in a fillet weld. (Fig. 5.47).

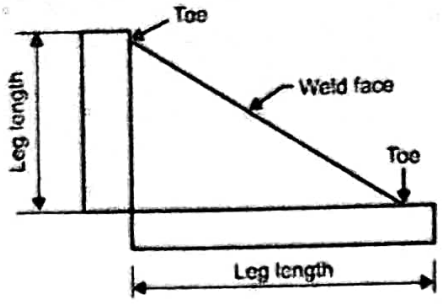

Fig. 5.47. Leg length

Toe : It is the junction between the face of a weld and the parent metal.

Weld Boad : It is a weld deposit resulting from a pass.

Reinforcement : It is the metal on the face of the weld which is higher than the surrounding parent metal or it is the metal lying outside the plane joining the toes. (Fig. 5.48).

Reinforcement serves the following purposes:

- It makes butt welder thicker than the parent metal.
- It refines the grain structure of the underlying weld layers.

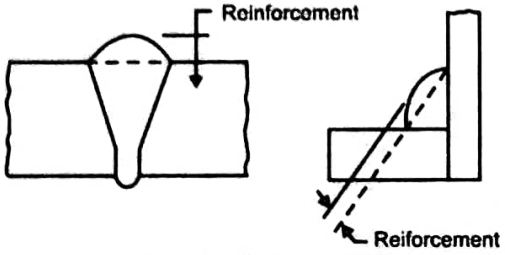

Fig. 5.48. Reinforcement

Throat Thickness : It is the actual distance from the root to the face of the weld. (Fig. 5.49).

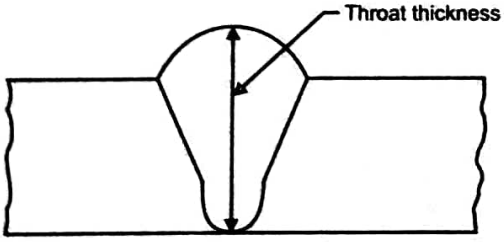

Fig. 5.49. Throat thickness

Back Weld : It is a weld deposited at the back of a single-butt weld after the main weld. (Fig. 5.50).

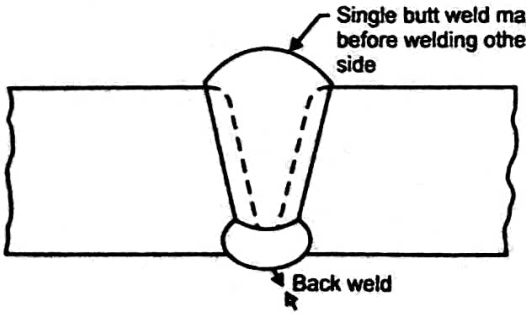

Fig. 5.50. Back Weld

Convex Fillet Weld: A fillet weld having convex face (Fig. 5.51).

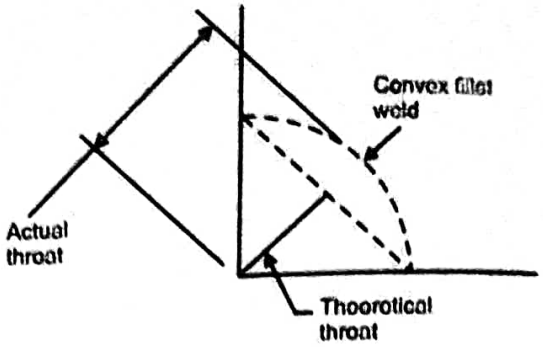

Fig. 5.51. Convex fillet weld

Concave Fillet Weld : A fillet weld havng concave face. (Fig. 5.52).

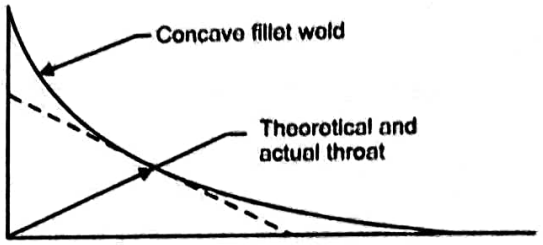

Fig. 5.52. Concave fillet weld

Root Face : It is the unbevelled or unground portion of a face at the root. (Fig. 5.53).

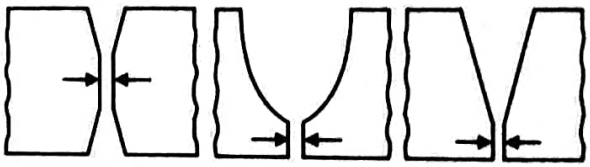

Fig. 5.53. Root faces marked with arrows

Root Gap : The separation between the members to be welded together, at the root of the joint. (Fig. 5.54).

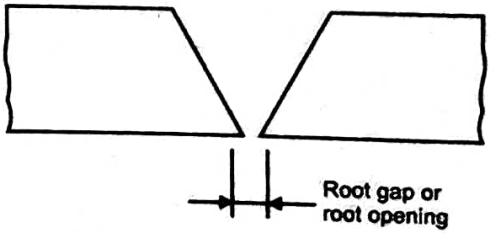

Fig. 5.54. Root gap

Root Edge : If the root face is of zero width, it is called root edge. (Fig. 5.55).

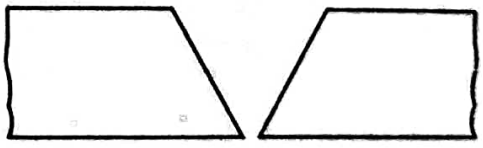

Fig. 5.55. Root edge