Weld Joint Geometry
and Welding Symbol

(26 February 2014)
Weld Joint Geometry

(AWS A3.0)

Standard Welding Terms and Definitions

(BS EN 499)

Welding Terms and Symbols.

(BS EN 29692   ISO 9692)

Joint Preparation for Steel
Weld Joints (AWS A3.0)
The followings are five basic joints

- Butt Joint
- Lap Joint
- Tee Joint
- Corner Joint
- Edge Joint
Edge Shapes

(A) SQUARE EDGE SHAPE

(B) SINGLE-BEVEL EDGE SHAPE

(C) DOUBLE-BEVEL EDGE SHAPE

(D) SINGLE-J-GROOVE EDGE SHAPE

(E) DOUBLE-J-GROOVE EDGE SHAPE

(F) FLANGED EDGE SHAPE
Edge Shape Combination

- Bevel-Groove
- V-Groove
- Square-Groove
- Bevel-Groove
- Square-Groove
- J-Groove
- Flanged T
PARTS OF THE WELD JOINT:

- Joint Root
- Groove face
- Root face
- Root opening
- Bevel
- Bevel angle
- Groove angle
- Groove radius
Joint Root

(A)  

(B)  

(C)  

(D)  

(E)  

(F)  

NOTE: Joint root is denoted by shading
Root of Preparation
BS-499
Groove face, Root face, Root edge
Bevel angle
Depth of bevel
Groove angle
Groove radius
Root opening
Gap, Root Face, Root Radius, Land, included angle and angle of bevel for Typical Weld Preparation (BS EN 29692  ISO 9692)
## WELD TERMINOLOGY

Nine categories of welds associated with weld symbols:

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Groove Welds

(A) Single-Scarf-Groove Weld (often used for brazing)

(B1) Single-Square-Groove Weld
(B2) Double-Square-Groove Weld

(C1) Single-V-Groove Weld
(C2) Double-V-Groove Weld

(D1) Single-Bevel-Groove Weld
(D2) Double-Bevel-Groove Weld
Fillet Welds

(A) Double Sided - Single Pass Fillet Welds on a Lap Joint
(B) Single Sided - Multiple Pass Fillet Welds on a Corner Joint
(C) Double Sided - Multiple Pass Fillet Welds on a T-Joint
(D) Fillet Welds around the diameter of a hole
Intermittent Fillet Welds

(E) Staggered Intermittent Fillet Welds Top View
(F) Chain Intermittent Fillet Welds Top View
Plug and Slot Welds

(A) Plug Weld

(B) Slot Weld
Stud Welds
Spot and Projection Welds

- Arc spot weld
- Resistance spot weld

(A) Resistance Spot Weld

(B) Arc Spot Weld

Embossed Top Member

Desired Weld
Seam Welds

- Arc Welding
- Electron Beam Welding
- Resistance Welding
Back and Backing Welds

(E) BACK WELD

(F) BACKING WELD

Groove Weld Made Before Welding Other Side

Groove Weld Made After Welding Other Side

Back Weld

Backing Weld