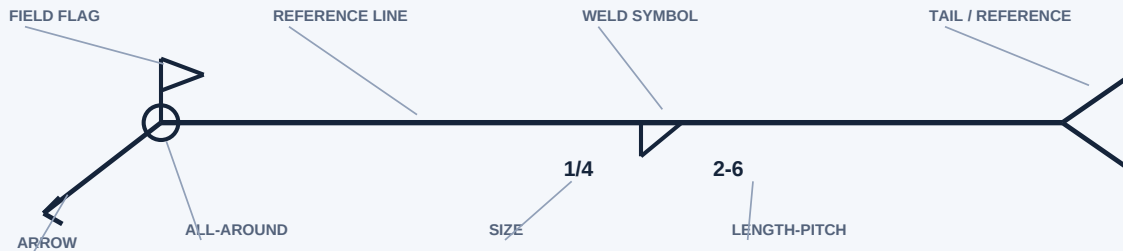


Welding Symbols Cheat Sheet

1 ANATOMY OF A COMPLETE WELDING SYMBOL

[Open the annotated anatomy lesson >](#)



READ IN THIS ORDER

- 01 JOINT** Trace the arrow tip to the exact joint.
- 02 SIDE** Below = arrow side; above = other side.
- 03 TYPE** Name the elementary weld symbol.
- 04 VALUES** Assign every number by its position.
- 05 MODIFIERS** Finish with extent, contour, tail, and notes.

2 POSITION SIGNIFICANCE

ARROW SIDE



Symbol below line

OTHER SIDE



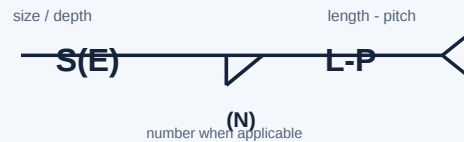
Symbol above line

BOTH SIDES



Symbols above + below

3 STANDARD LOCATION OF VALUES



PROCESS / WPS

Meaning changes by weld family - use pages 2-3.

[Practice dimensions >](#)

[Practice side placement >](#)

4 BASIS OF REFERENCE - IDENTIFY THE PHYSICAL JOINT BEFORE THE SYMBOL FAMILY

FIVE BASIC JOINT ARRANGEMENTS

The joint is the anchor. The icon does not replace the section or detail view.

	BUTT	Members meet edge-to-edge
	CORNER	Members form an L
	T-JOINT	One member meets the face
	LAP	Members overlap
	EDGE	Parallel or near-parallel edges

Arrow side = the side of the joint to which the arrow points.

TRANSLATE THE WHOLE INSTRUCTION



SAY IT OUT LOUD

At the arrowed joint, make a 1/4 arrow-side intermittent fillet weld, 2 long at 6 pitch, in the field, using the tail reference.

Then verify units, extent, joint detail, WPS, and acceptance requirements.

[Try this reading sequence in a live question >](#)

1 FIFTEEN COMMON WELDING SYMBOLS AND THE DECISION EACH ONE STARTS

SCOPE Common AWS-style welding symbols used in fabrication reading. Brazing and nondestructive examination symbols are separate systems.
Use the joint detail to confirm geometry; use page 3 for values and modifiers.

[Official AWS A2.4:2020 source >](#)



Fillet
TRIANGLE

JOINT CUE
Corner, lap, or T-joint.

READ NEXT
Leg size left; length-pitch right.



Square groove
PARALLEL LINES

JOINT CUE
Square mating edges.

READ NEXT
Read root opening and any size.



V groove
TWO STRAIGHT SIDES

JOINT CUE
Both edges are prepared.

READ NEXT
Read angle, opening, depth, size.



Bevel groove
SQUARE + SLOPE

JOINT CUE
One member is prepared.

READ NEXT
Arrow may identify prepared member.



U groove
CURVED U

JOINT CUE
Curved prep on both edges.

READ NEXT
Read radius, opening, depth, size.



J groove
SQUARE + CURVE

JOINT CUE
Curved prep on one member.

READ NEXT
Assign prepared member from arrow/detail.



Flare-V groove
TWO CURVED SIDES

JOINT CUE
Two rounded members form groove.

READ NEXT
Do not invent machined preparation.



Flare-bevel
FLAT + CURVE

JOINT CUE
Rounded member meets flat member.

READ NEXT
Read specified size/depth and extent.



Plug / slot
OPEN RECTANGLE

JOINT CUE
Prepared opening is filled.

READ NEXT
Read diameter/width, fill, count, pitch.



Spot / projection
CIRCLE

JOINT CUE
Localized weld at a point.

READ NEXT
Read size, count, pitch, and process.



Seam
PARALLEL LINES

JOINT CUE
Elongated weld path.

READ NEXT
Read size, length, pitch, and process.



Stud
CIRCLE WITH X

JOINT CUE
Stud is welded to a receiving face.

READ NEXT
Read stud size, number, and pitch.



Surfacing
LAYERED HUMPS

JOINT CUE
Deposited layer over an area.

READ NEXT
Read thickness, area, layers, process.



Edge
SQUARED U

JOINT CUE
Edges of parallel members.

READ NEXT
Read size, length, side, and contour.



Back / backing
SEMICIRCLE

JOINT CUE
Deposited on reverse side.

READ NEXT
Sequence determines back or backing.

Recognition is only step 3 of 5. Joint, side, values, and supplementary requirements still control the instruction.

[Open 30 illustrated guides and transfer exercises >](#)

1 DIMENSIONS BY WELD FAMILY - THE SAME POSITION CAN CARRY DIFFERENT MEANING

FILLET / INTERMITTENT



1/4 2-6

- Left = fillet leg size.
- Right = length, then pitch.
- Pitch is center-to-center.

GROOVE



S(E) L

- S = preparation depth.
- E in () = groove weld size.
- Also read angle and root opening.

PLUG / SLOT



DIA / W (N) P

- Read diameter or slot width.
- Check fill depth and countersink.
- Count, spacing, and orientation matter.

SPOT / SEAM / STUD



SIZE (N) PITCH

- Size is placed to the left.
- Number may appear in parentheses.
- AWS 2020: strength goes in tail/note.

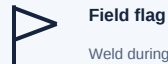
EDGE / SURFACING



SIZE EXTENT

- Read size, length, or covered area.
- Tail may control process or area.
- Joint geometry decides the family.

2 SUPPLEMENTARY SYMBOLS AND CONSTRUCTION CONTROLS



Field flag

Weld during field erection



All-around

One applicable joint boundary



Flat / flush

Flat fillet; flush for other welds



Convex

Required profile curves outward



Concave

Required profile curves inward



Melt-through

Required root reinforcement



Backing

R can require backing removal



Spacer

Part of the groove joint detail



Consumable insert

Insert type is stated in tail



Tail

Process, specification, WPS, or note



Multiple lines

Nearest line is first operation



CJP / backgouge

Confirm tail, detail, and sequence

3 SEQUENCE, SPACING, AND EXTENT - THREE CONTROLS THAT ARE EASY TO OVERREAD

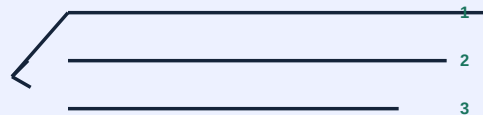
INTERMITTENT WELDS

L-P = segment length, then pitch



Pitch is not the clear gap between segments.

MULTIPLE REFERENCE LINES



Closest to the arrow is the first operation.

Do not merge stages or move values between lines.

EXTENT, CONTOUR, AND FINISH



Profile and finish modify the weld; they do not change its family.

All-around and field are separate instructions.

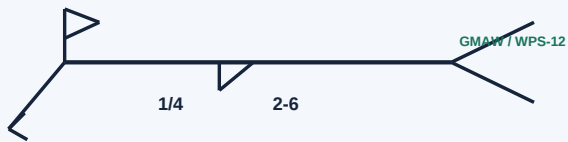
If extent is unclear, stop and resolve the drawing.

[Practice value placement >](#)

Worked Examples & Release Check

1 THREE COMPLETE EXAMPLES - NAME THE JOINT, SIDE, FAMILY, VALUES, AND NOTES

A INTERMITTENT FILLET



- JOINT** Arrow tip controls the joint.
- SIDE** Symbol below = arrow side.
- TYPE** Fillet weld; field flag changes location.
- VALUES** 1/4 size; 2 length at 6 pitch.
- NOTES** Use tail reference; verify units and extent.

[Practice length and pitch >](#)

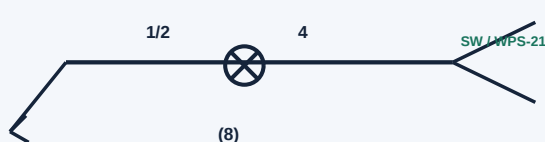
B SINGLE-BEVEL GROOVE



- JOINT** Broken arrow can identify prepared member.
- SIDE** Symbol above = other side.
- TYPE** Single bevel: one member stays square.
- VALUES** Separate prep depth, weld size, angle, opening.
- NOTES** Do not assume CJP, backing, or process.

[Open the bevel-groove lesson >](#)

C STUD WELD LAYOUT



- JOINT** Arrow identifies the receiving face.
- SIDE** Confirm the face in the physical detail.
- TYPE** Circle with X = stud weld.
- VALUES** 1/2 size; 8 studs; 4 pitch.
- NOTES** Locate first/last stud and verify process.

[Open the stud-weld lesson >](#)

2 STOP, VERIFY, AND THEN RELEASE THE WORK

COMMON READING TRAPS

- Arrow identifies the joint; symbol placement identifies the side.
- Pitch is center-to-center spacing, not the clear gap.
- All-around applies to one continuous joint boundary, not every edge.
- A blank tail does not supply missing process or acceptance criteria.
- AWS and ISO conventions are not interchangeable.
- Never invent units, penetration, finish, or WPS requirements.

FINAL CHECK

- Exact joint and applicable boundary?
- Correct arrow side, other side, or both?
- Weld family matches the physical detail?
- Every number assigned by family and position?
- Modifiers, tail, notes, WPS, and units checked?

TEST THE NEXT CALLOUT WITHOUT THE SHEET >

Scan for a 60-second skill check and personal skill map.

