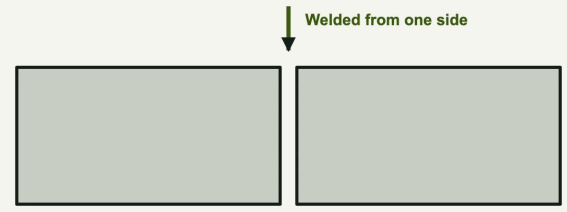
Weld Bevel and Groove Types with Typical Dimensions

Groove shapes for steel butt welds and typical preparation ranges per ISO 9692-1.

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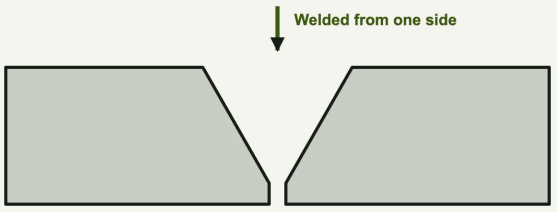
Square groove (I-groove)



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Square (I) groove: square edges, used on thin material.

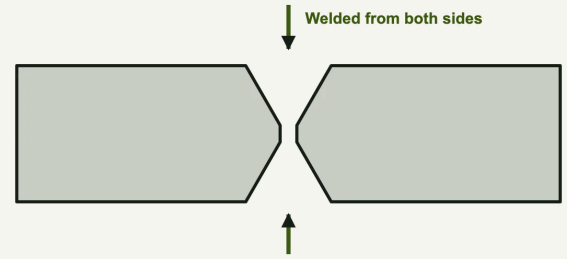
Single-V groove



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Single-V groove: both edges beveled, welded from one side.

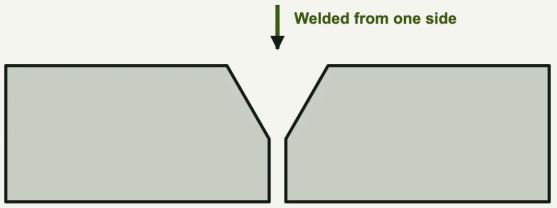
Double-V groove (X-groove)



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Double-V (X) groove: beveled from both faces, welded from both sides.

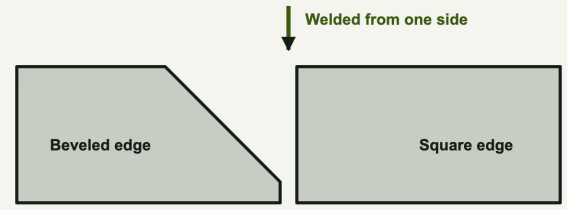
Y groove



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Y groove: a V bevel above a large root face.

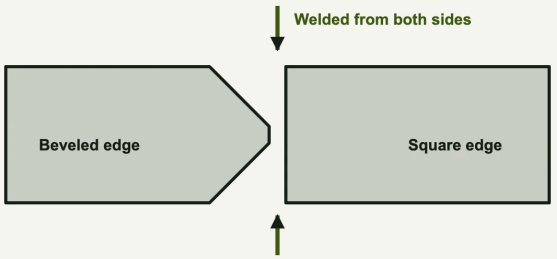
Single-bevel groove



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Single-bevel groove: one edge beveled, the other square.

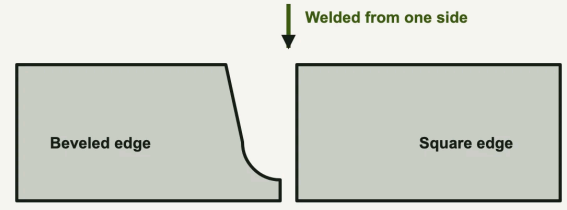
Double-bevel groove (K-groove)



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Double-bevel (K) groove: one edge beveled from both faces.

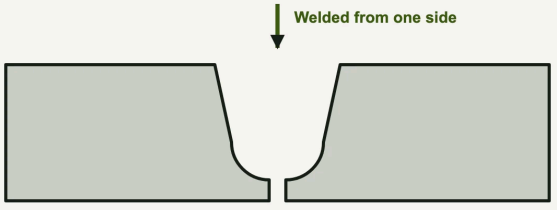
Single-J groove



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Single-J groove: radiused profile on one edge saves weld metal on thick plate.

Single-U groove



Schematic, not to scale. Final dimensions follow the WPS. tfon.com.tr

Single-U groove: radiused profile on both edges for thick plate.

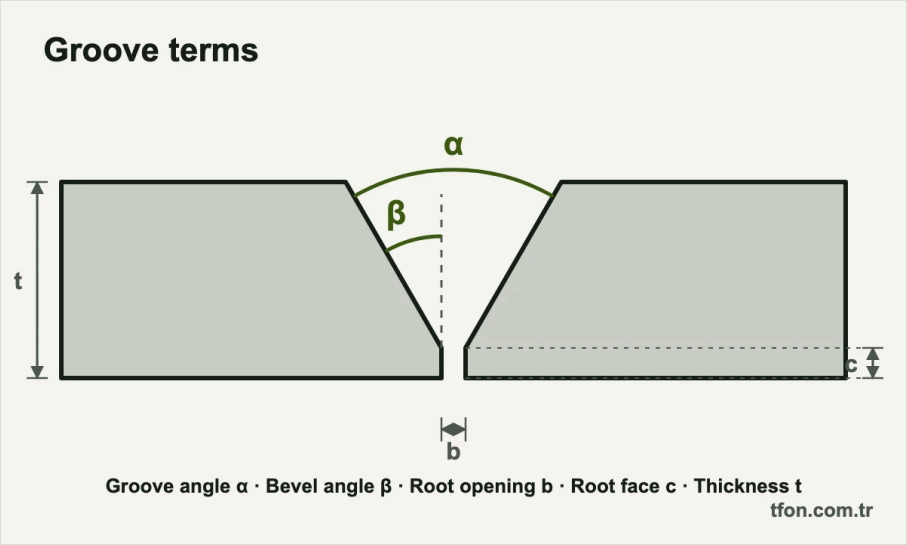
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Weld Bevel and Groove Types with Typical Dimensions

Groove shapes for steel butt welds and typical preparation ranges per ISO 9692-1.

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Groove terms and typical dimensions



Groove terms: groove angle α, bevel angle β, root opening b, root face c, thickness t.

Typical joint preparation ranges for steel butt welds per ISO 9692-1 (the WPS and applicable code govern final values)

GROOVE	WELDED FROM	PLATE THICKNESS T	ANGLE	ROOT GAP B	ROOT FACE C
Square (I), stick or TIG	One side	up to 4 mm	none	about t	none
Square (I), stick or TIG	Both sides	up to 8 mm	none	about t/2	none
Single-V	One side	over 3 up to 10 mm	α 40° to 60°	up to 4 mm	up to 2 mm
Y (V with broad root face)	One side	5 to 40 mm	α about 60°	1 to 4 mm	2 to 4 mm
Single-bevel (half V)	One side	over 3 up to 10 mm	β 35° to 60°	2 to 4 mm	1 to 2 mm
Single-U	One side	over 12 mm	β 8° to 12°	up to 4 mm	up to 3 mm
Single-J	One side	over 16 mm	β 10° to 20°	2 to 4 mm	1 to 2 mm
X (double-V)	Both sides	over 10 mm	α about 60°; 40° to 60° for MIG/MAG	1 to 3 mm	up to 2 mm
K (double-bevel)	Both sides	over 10 mm	β 35° to 60°	1 to 4 mm	up to 2 mm

Typical ranges only. The WPS, the drawing and the applicable code govern the final values. Schematic drawings, not to scale.

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