



WELDING TRAINING & CERTIFICATION™: PRACTICE WELDING GUIDE

ALUMINUM GMA (MIG) WELDING (THIN: 1 MM, THICK: 2.5 MM)

	VOLTAGE	WIRE SPEED	
<p>1. BUTT WITH BACKING 2.5 mm</p> <p>Welding Position Vertical Butt together two coupons along their length.</p> <p>Visual Requirements:</p> <p>Faceside: 57–76 mm long 10–16 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive Testing Requirement: Tearout from the 2 top coupons for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			
<p>2. FILLET</p> <p>Welding Position Vertical Overlap 1 mm coupon halfway along the length of a 2.5 mm coupon</p> <p>Visual Requirements:</p> <p>Faceside: 57–76 mm long 5–10 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive Testing Requirements: Tearout from the top coupon for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			
<p>3. BUTT WITH BACKING 1 mm</p> <p>Vertical Butt together two coupons along their length</p> <p>Visual: 57–76 mm long 5–10 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive: Tearout from the top coupon for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			



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<p>4. PLUG</p> <p>Vertical Overlap two 1 mm coupons over one corner, 8 mm hole in the top coupon</p> <p>Visual: 11–15 mm face diameter 0–3 mm face height</p> <p>Backside: 0–3 mm melt-through height 3–8 mm melt-through diameter Zero defects</p> <p>Destructive: Tearout hole in the bottom coupon must be at least 5 mm in diameter</p>			
<p>5. BUTT WITH BACKING 2.5 mm</p> <p>Overhead Butt together two coupons along their length with backing of same thickness; set necessary root gap.</p> <p>Visual: 57–76 mm long 10–16 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive: Tearout from the top coupons for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			
<p>6. FILLET</p> <p>Overhead Overlap 1 mm coupon halfway along the length of a 2.5 mm coupon</p> <p>Visual: 57–76 mm long 5–10 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive: Tearout from the top coupon for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			



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	VOLTAGE	WIRE SPEED	
<p>7. BUTT WITH BACKING 1 mm</p> <p>Overhead Butt together two coupons along their length</p> <p>Visual: 57–76 mm long 5–10 mm wide 0–2 mm face height</p> <p>Backside: 0–2 mm melt-through height 0–3 mm melt-through width Zero defects</p> <p>Destructive: Tearout from the top coupon for the full length of the weld and the weld bead holds firmly to the bottom coupon</p>			



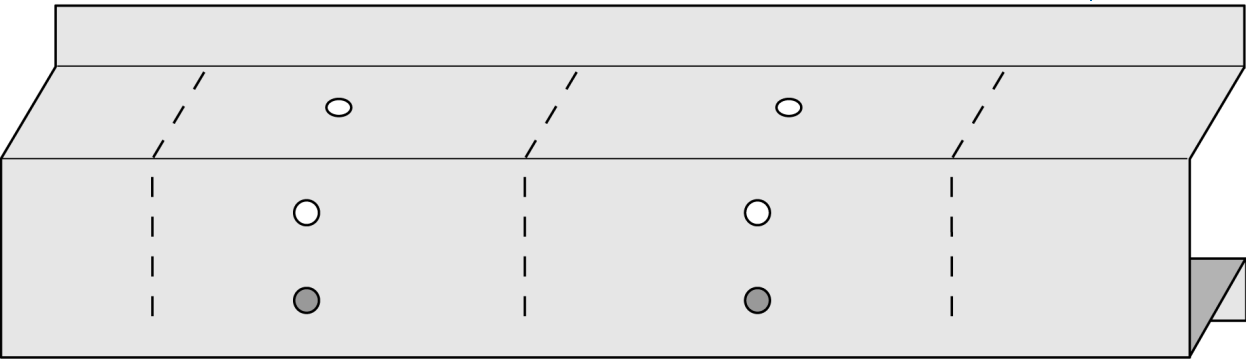
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STEEL SECTIONING (THIN: 1 MM, THICK: 2.5 MM)

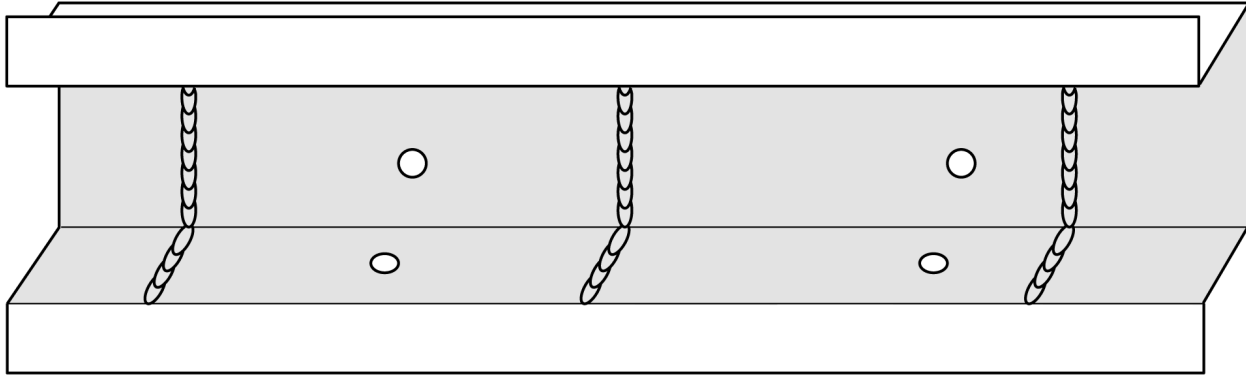
	VOLTAGE	WIRE SPEED	
<p>1. PLUG THIN-THICK</p> <p>Vertical Overlap coupons halfway to form T 6 mm hole in top thin coupon</p> <p>Visual: face diameter: 8–10 mm face height: 3 mm maximum</p> <p>Backside: melt-through height: 0–1.5 mm melt-through diameter: 3–6 mm Zero defects</p> <p>Note: There is no destructive test for this weld</p>			
<p>2. OPEN BUTT THIN-THIN</p> <p>Overhead Butt two coupons along length</p> <p>Visual: bead length: 25–38 mm face width: 3–8 mm face height: 0–3 mm</p> <p>Backside: melt-through height: 0–1.5 mm melt-through width: 5 mm maximum Complete fusion</p>			
<p>3. PLUG THICK-THICK</p> <p>Vertical Overlap coupons on corner, 90° 8 mm hole in top coupon</p> <p>Visual: face diameter: 10–13 mm face height: 3 mm maximum</p> <p>Backside: melt-through height: 0–1.5 mm melt-through diameter: 5–10 mm Zero defects</p>			
<p>4. BUTT WITH BACKING THICK-THICK</p> <p>Vertical Butt together two coupons along their length with backing of same thickness; set necessary root gap.</p> <p>Visual: bead length: 25–38 mm face width: 5–10 mm face height: 0–3 mm</p> <p>Backside: melt-through height: 0–1.5 mm melt-through width: 5 mm maximum</p>			

STEEL SECTIONING (THIN: 1 MM, THICK: 2.5 MM)

	VOLTAGE	WIRE SPEED
<p>5. INSIDE CORNER WELD</p> <p>Welding the inner front lower rail must be done from the inside of the rail only. It may be difficult to achieve the visual requirements including adequate penetration. This practice weld is designed to discover techniques and settings for achievement of visual requirements. This part is available in the “Steel Sectioning Rail Kit.”</p> <p>Visual Requirements: face width: 3–10 mm face height: 3 mm maximum melt-through height: 0–1.5 mm melt-through width: 10 mm maximum Evidence of complete fusion</p> <p>Note: There is no destructive test for this weld</p>		



--- Cut-Through Corners



Practice Welds



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<p>1. FILLET THIN-THIN</p> <p>Vertical Overlap halfway along length</p> <p>Visual: 25–38 mm long 3–8 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width</p> <p>Destructive: Tearout from the top coupon for the full length of the weld The weld bead holds firmly to the bottom coupon</p>			
<p>2. OPEN BUTT THIN-THIN</p> <p>Vertical Butt together two coupons along their length</p> <p>Visual: 25–38 mm long 3–8 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width Evidence of complete fusion</p> <p>Destructive: Fold faces onto each other No cracking in weld backside along length</p>			
<p>3. PLUG THIN-THICK</p> <p>Vertical Overlap coupons halfway to form T 6 mm hole in the top coupon</p> <p>Visual: 8–10 mm face diameter 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 3–6 mm melt-through diameter Zero defects</p> <p>Destructive: There is no destructive test for this weld</p>			



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<p>4. PLUG THIN-THIN</p> <p>Vertical Overlap coupons on corner, 90° 6 mm hole in the top coupon</p> <p>Visual: 8–10 mm face diameter 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 3–6 mm melt-through diameter Zero defects</p> <p>Destructive: 3–8 mm hole in bottom coupon</p>			
<p>5. PLUG THICK-THICK</p> <p>Vertical Overlap coupons on corner, 90° 8 mm hole in the top coupon</p> <p>Visual: 10–13 mm face diameter 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5–10 mm melt-through diameter Zero defects</p> <p>Destructive: 5–10 mm hole in bottom coupon</p>			
<p>6. BUTT WITH BACKING THICK-THICK</p> <p>Vertical Butt together two coupons along their length with backing of same thickness; set necessary root gap.</p> <p>Visual: 25–38 mm long 5–10 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width Zero defects</p> <p>Destructive: Tearout from the top coupons for the full length of the weld The weld bead holds firmly to the bottom coupon</p>			



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<p>7. FILLET THIN-THIN</p> <p>Overhead Overlap two coupons halfway along length</p> <p>Visual: 25–38 mm long 3–8 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width The weld bead holds firmly on the bottom coupon</p> <p>Destructive: Tearout from the top coupon for the full length of the weld The weld bead holds firmly to the bottom coupon</p>			
<p>8. OPEN BUTT THIN-THIN</p> <p>Overhead Butt together two coupons along their length</p> <p>Visual: 25–38 mm long 3–8 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width Evidence of complete fusion</p> <p>Destructive: Fold faces onto each other No cracking in weld backside along length</p>			
<p>9. PLUG THIN-THICK</p> <p>Overhead Overlap coupons halfway to form T 6 mm hole in the top thin coupon</p> <p>Visual: 8–10 mm face diameter 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 3–6 mm melt-through diameter Zero defects</p> <p>Destructive: There is no destructive test for this weld</p>			



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	VOLTAGE	WIRE SPEED	
<p>10. BUTT WITH BACKING THIN-THIN</p> <p>Overhead Butt together two coupons along their length with backing of same thickness; set necessary root gap.</p> <p>Visual: 25–38 mm long 3–8 mm wide 0–3 mm face height</p> <p>Backside: 0–1.5 mm melt-through height 5 mm maximum melt-through width</p> <p>Destructive: Tearout from the top coupons for the full length of the weld The weld bead holds firmly to the bottom coupon</p>			