

# PWS MIG Welding Settings App — Field Guide

## 1) Material

- **Mild / Carbon Steel:** most common. Baselines are most reliable here.
- **Stainless:** requires correct filler and gas mix. Use it as a baseline, then verify.
- **Aluminum:** requires proper feeding setup and typically 100% Argon. Use baseline + test coupons.

## 2) Thickness

Thickness drives heat input. Thicker material generally needs higher voltage and/or higher wire feed speed and often multiple passes.

## 3) Joint type

- **Fillet:** common on frames, gates, brackets.
- **Butt:** requires fit-up control and often beveling on thicker material.
- **Lap / Corners:** can trap contamination; clean and control heat.

## 4) Position

- **Flat:** easiest; highest deposition possible.
- **Horizontal:** watch undercut on top edge.
- **Vertical Up:** smaller puddle; reduce heat; controlled technique.
- **Vertical Down (thin):** for thin gauge only; risk of lack of fusion.
- **Overhead:** reduce puddle size; controlled travel and shorter stickout.

## 5) Process / Mode

- **Short Circuit:** most common for general fabrication and thinner steel.
- **Spray:** higher deposition, requires correct gas and more heat; typically for thicker steel in flat/horizontal.
- **Pulse:** controlled transfer if the machine supports it; still verify with test beads.

## 6) Wire type

- **ER70S-6 (solid steel):** common for mild steel with shielding gas.
- **FCAW-GS (self-shield flux core):** no gas; often DCEN; good outdoors; more smoke/spatter.
- **FCAW-G (gas shield flux core):** uses gas; high deposition; verify polarity.
- **308L (stainless):** stainless filler; requires correct gas and technique.
- **4043 (aluminum):** aluminum filler; requires correct feeding setup and argon.

## 7) Wire diameter

- **0.023:** thin gauge control, lower heat.
- **0.030:** general purpose.
- **0.035:** common for structural and heavier fabrication.
- **0.045:** higher deposition on thicker material; requires machine capability.

## 8) Shielding gas

- **75/25 (C25):** common steel short circuit.
- **100% CO<sub>2</sub>:** deeper penetration, more spatter.
- **100% Argon:** aluminum MIG.

- **Tri-mix:** common for stainless (verify).
- **90/10 (Ar/CO<sub>2</sub>):** often used for spray transfer steel.

## 9) Polarity

- **DCEP:** typical for solid wire MIG.
- **DCEN:** common for many self-shield flux core wires.  
Always verify your spool label or manufacturer sheet.

## 10) Technique output

Use the tool's technique notes as a starting point. Angle, travel speed, and stickout are as important as voltage/WFS.

### Final reminder

Baseline settings are not a WPS. Always confirm on scrap and follow job requirements.