

ONLY PEOPLE WHO HAVE TAKEN THE WELDING COURSE OR HAVE BEEN VERIFIED BY A SKILL TEST AS PROFICIENT CAN SET UP AND USE THE WELDER!

Quick Reference: How to set up the Quelab MIG welder:

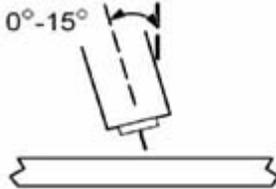
1. SAFETY FIRST! Put on your personal protective equipment and shield the work area to protect people working nearby.
 - a. Personal protective equipment (PPE) must include the following:
 - i. Welding helmet
 - ii. Welding gloves
 - iii. Closed-toe shoes
 - b. PPE may also include the following:
 - i. Apron
 - ii. Safety goggles
 - iii. Welding cap
 - c. Shielding must include the red safety curtain. You may also set up a wooden screen around the work area if someone else is nearby. Please be mindful to reminding a work-buddy to don their helmet before striking an arc.
2. Plug in the power cord to the 220VAC socket.
3. Open the welder panel to view the settings table. Find the correct gas type, voltage and wire feed speed based upon the wire diameter (we typically use 0.030") and base material thickness. Set accordingly.
4. Fully open the valve on the gas tank. Next, adjust the regulator to approximately 15 cfh (cubic feet per hour.)
5. Visually check the end of the gun for splatter. Remove with pliers if needed.
6. Ear check for gas flow and verify that wire advanced.
7. Clip stick out with pliers back to ¼" length protrusion (or arc off if preferred.)
8. Ground your workpiece and flip your helmet down. You are ready to begin welding!

How to turn off the Quelab MIG welder:

1. Turn the wire speed down to its lowest setting.
2. Close the gas valve to the tank
3. Turn off the welder at the ON/OFF switch.
4. Remove the ground clamp and wrap it around the welder.
5. Unplug the welder. Coil all wires neatly.
6. Clean up the area – brush off the table, sweep, put away tools.
7. DOUBLE-CHECK: did you close the gas valve completely? Entire bottles have been wasted in the past by accident, please check it again.

Troubleshooting Guide:

Properties of a good weld include penetration into the base material, appropriate bead width, flat bead profile, and good tie-in at the toes (where the edges of the weld meet the base material.)

ROOT CAUSE	POSSIBLE ISSUES	FIX
Lack of/inadequate shielding gas	Pinholes or porosity of face and interior of weld	Check tank valve – if 0, tank is empty. Verify regulator setting. Set up shield if windy. Check gas hose and gun for leak. Increase flow at regulator (never > 25psi)
Excessive shielding gas	Turbulence in puddle	Decrease flow at regulator
Wire feed speed too low	Narrow, often convex bead with poor tie-in. Burnback (weld forms in contact tip) may occur.	Adjust wire feed speed higher
Wire feed speed too high	Poor arc starts, excessively wide bead, poor penetration, excessive splatter. May cause burn-through	Adjust wire feed speed lower
Travel speed too slow	Excessively wide bead, poor penetration. May cause burn-through in thin material.	Increase travel speed. Practice before welding for “muscle memory”
Travel speed too fast	Narrow, convex bead with poor tie-in, poor penetration, inconsistent weld bead	Decrease travel speed. Practice before welding for “muscle memory.” When weaving, pause slightly at each edge of bead before dragging across
Voltage too low	Poor arc starts, control, penetration. Excessive splatter, convex bead profile, poor tie-in.	Increase voltage setting
Voltage too high	Poor arc control, inconsistent penetration, turbulent weld pool. May cause burn-through. Check your heat-affected zone, as a darker color of oxide layer indicates thicker surface oxidation.	Decrease voltage setting
Welding wire too far out at strike	Porous bead	Use pliers to reduce stick out to approx. ¼” (or arc off)
Incorrect MIG gun angle	Undercut bead	
Dirty base material	Excessive spatter	Wipe clean or angle grind the surface
Worn contact tip	Excessive spatter, poor arc starts, poor arc control	Visually inspect and replace if necessary
MIG gun too close to base metal	Burnback (weld forms in contact tip)	Lengthen the distance of the MIG gun from the workpiece to approx ¼” (no further than ½”) and replace the contact tip if welded inseparably to wire
Insufficient grounding	Poor arc starts	Ground directly to workpiece. Angle grind if painted