ETH STUDENT PROJECT HOUSE

MAG Welder

ESAB Warrior 400i CC/CV

- Setup for Mild Steel
- Workpiece thickness > 2 mm
- Shielding gas: 82% Argon, 18% CO_2
- Electrode: 1.0 mm AWS ER70S-6
- Direct Current, Electrode Positive

SAFETY

This is a quick reference guide. Always follow the manufacturer's operating manual and consult your supervisor if you are unsure about any procedure.

- **Risk of electric shock: Ensure proper work return connection and insulate yourself**
- **Electromagnetic fields: Can be dangerous**
- **Wear fire resistant overall & leather apron**
- **Wear thick leather gloves**
- **Wear safety shoes**
- **Wear long thick pants**
- **Wear safety glasses + welding mask**
- **FFP3 mask recommended**
- **Ensure fume extraction fan is operating**
- **Keep clear of hot surfaces**
- **Do not touch the workpiece near the weld until it has cooled**

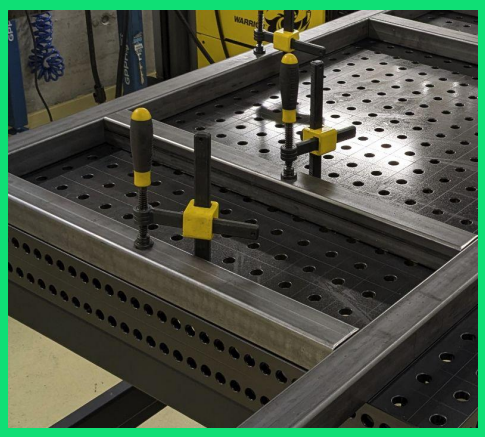
WORKPIECE PREPARATION

1. Prepare & clean workpieces

- Bevel where required
- Clean the weld area thoroughly

2. Align and fix workpieces on bench

- Apply anti-spatter spray to table and fixtures
- Place fume extraction hose directly above work area



3. Ensure proper work return connection

- Place work return clamp on workpiece if possible
- If the work return clamp is attached to the table, ensure good electrical contact between the workpiece and the table.
- Keep current path as short as possible

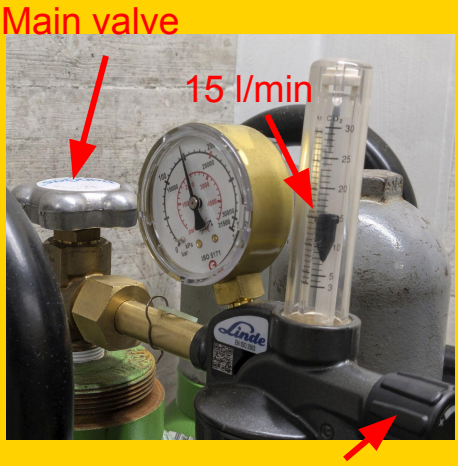
MACHINE SETUP

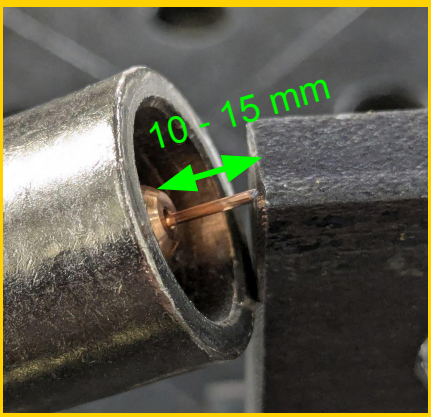
4. Set machine up

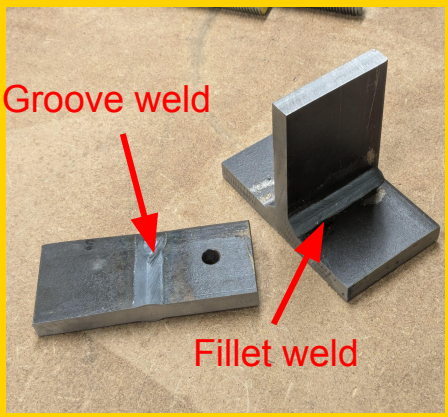
- Open main gas valve and set shielding gas flow to 15 l/min
- Contact-tip-to-work distance: 10 - 15 mm

Wire Feed Speed and Voltage: Choose according to workpiece thickness.

Below values are starting parameters for a fillet weld.
Adjust as required: e.g. reduce values by ~10% for groove weld.







Thickness [mm]	Wire Feed Speed [m/min]	Voltage [V]	Induction
2	4	18	0-4
3	4,5	19	0-4
4	6	20	-
6	9	23	-
10	15	25	-

ROUTINE MAINTENANCE

5. Torch maintenance

- Trim the oxidized electrode tip
- Remove spatter from the gas nozzle