

Assignment 1

No posts are too long

Assignment 2 Due Sunday Night

Friday office hours 1:00 - 2:00

Adhesives (Glue)

Epoxy

Water based

Polyurethane

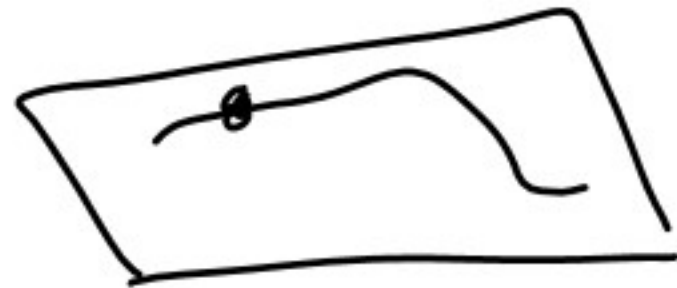
Cyanoacrylate

CA

Super Glue



Clamp parts together



Hot Glue

Silicone

Mortar

Acrylic

PSA

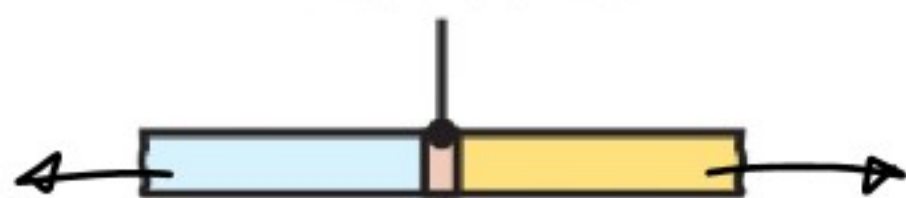
Pressure Sensitive Adhesives

Hot Glue WGA

CA Q

Poor

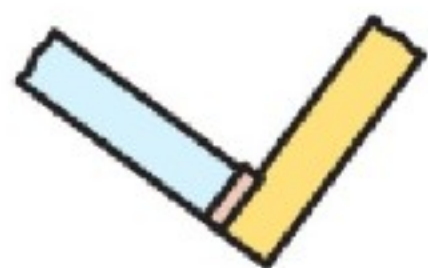
Adhesive



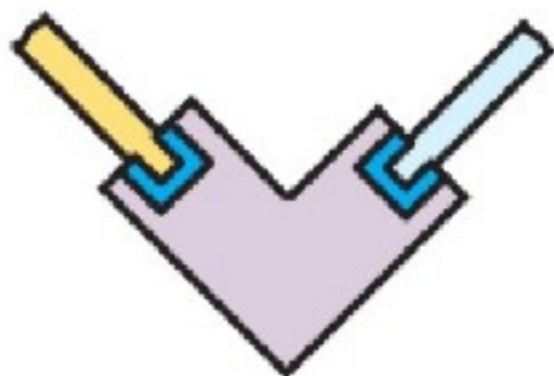
Good



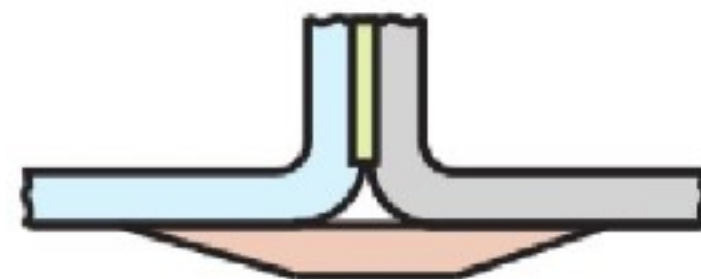
Very good



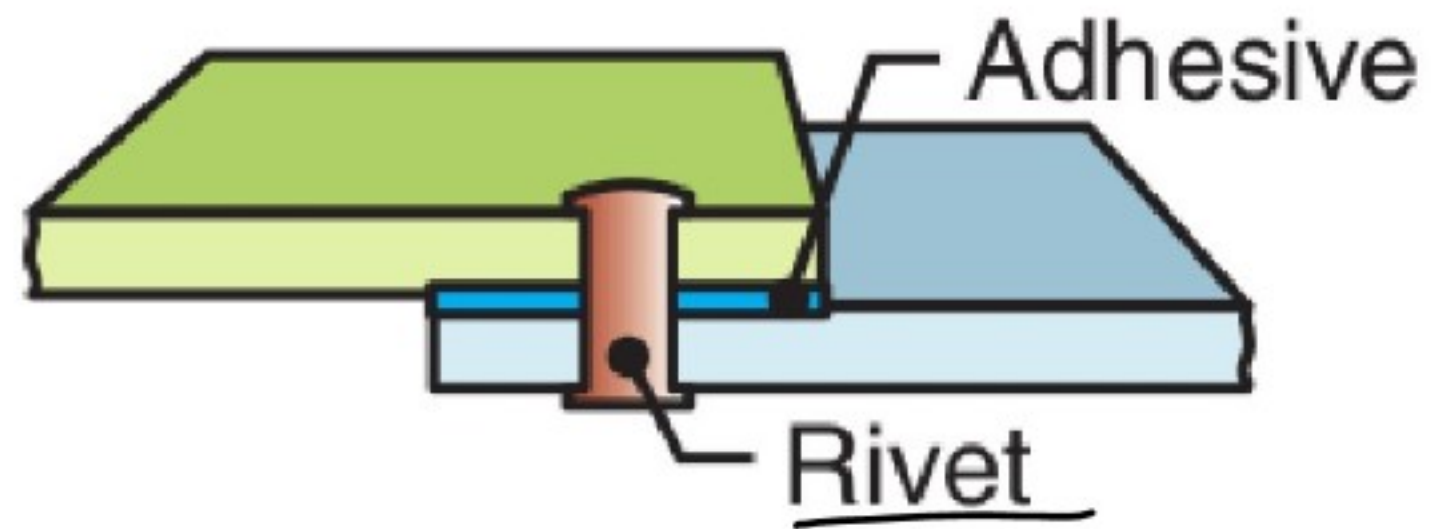
(a)



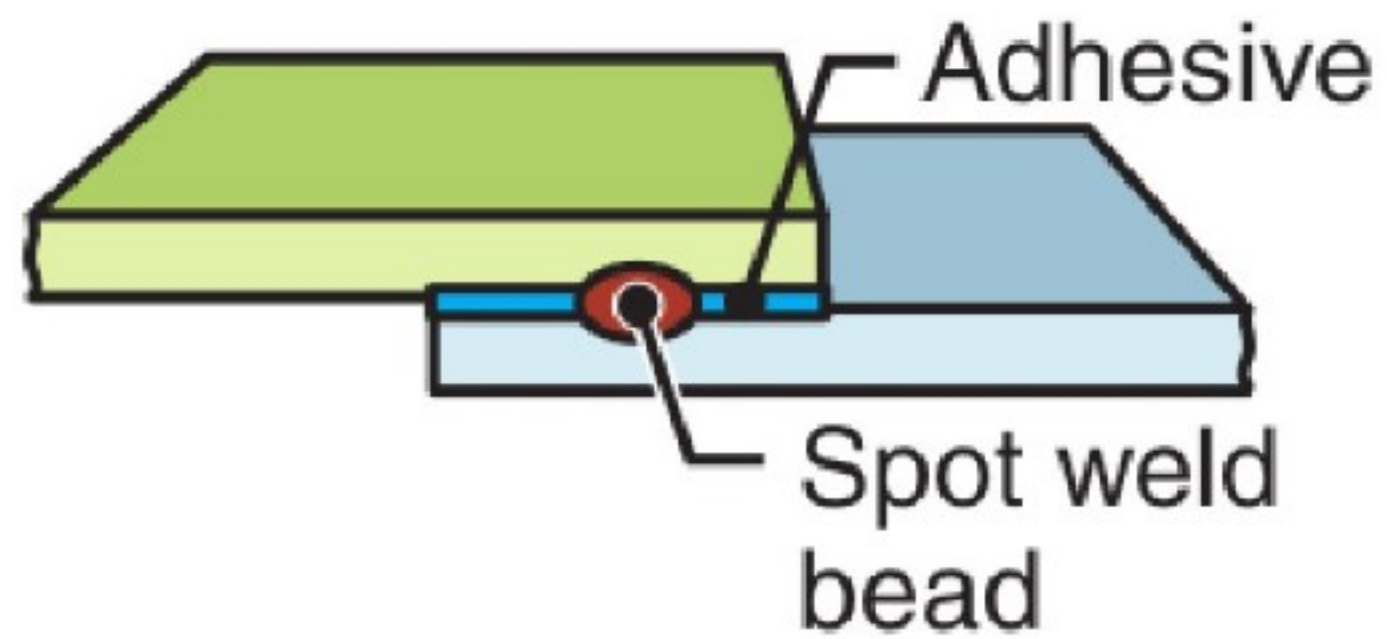
(b)



(c)



(a)



(b)

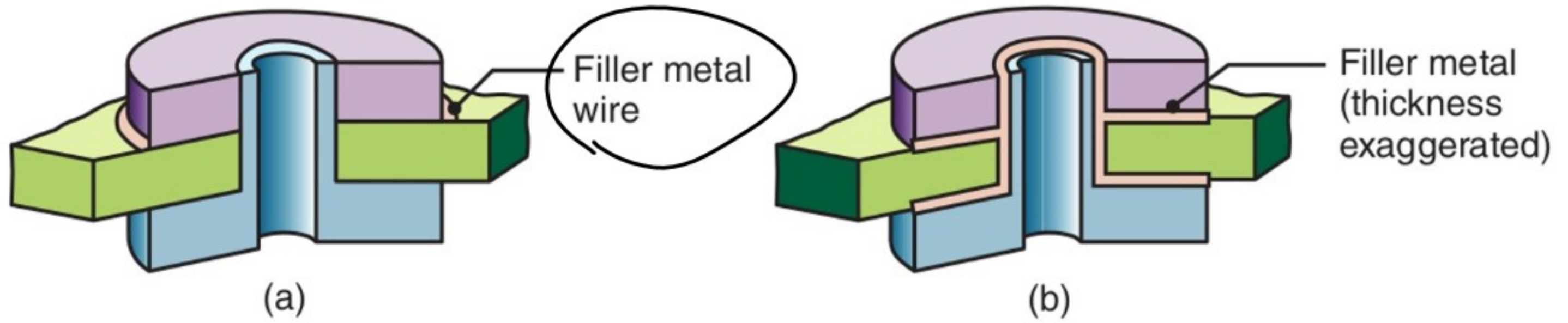
Soldering / Brazing

Solder melts below  $390^{\circ}\text{F}$

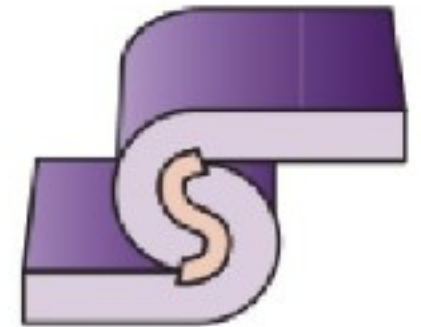
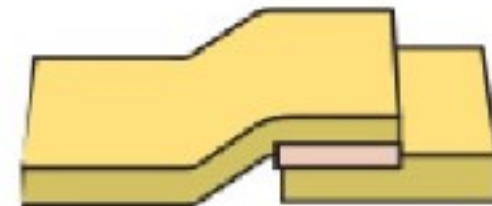
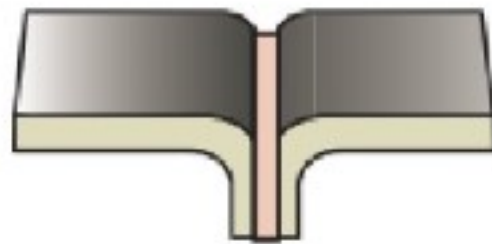
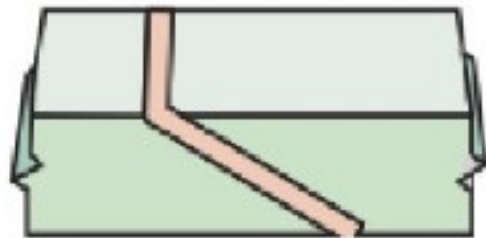
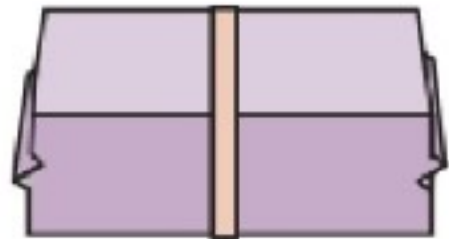
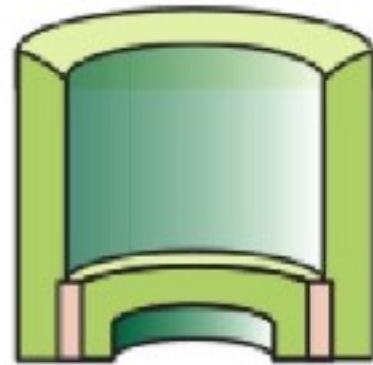
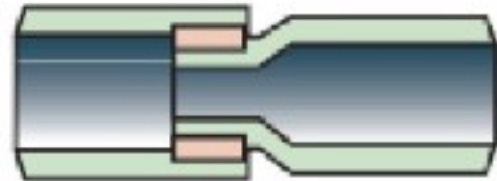
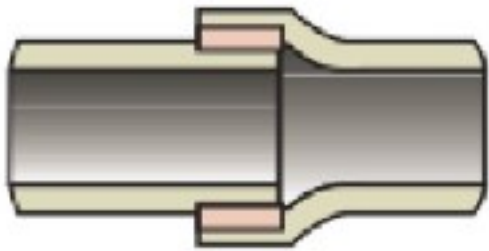
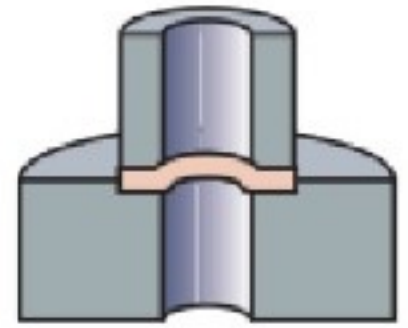
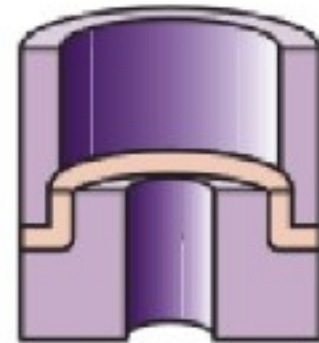
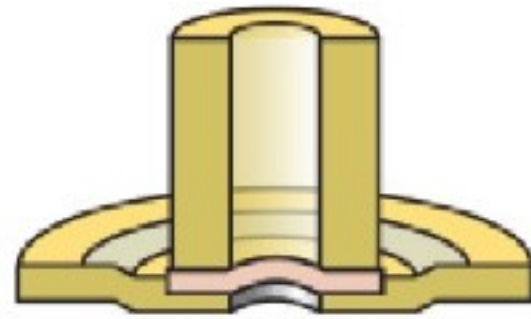
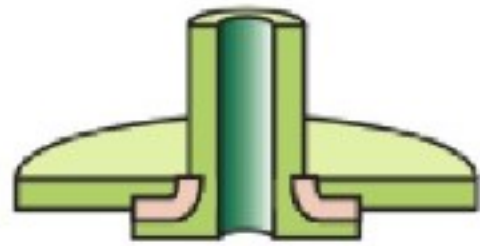
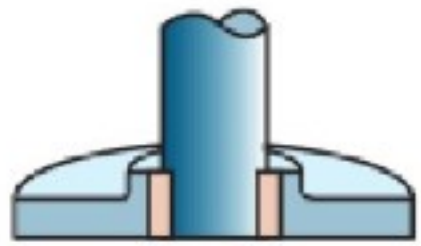
In brazing melting point above  $390^{\circ}\text{F}$

Rosin core solder

Fill gaps with flux

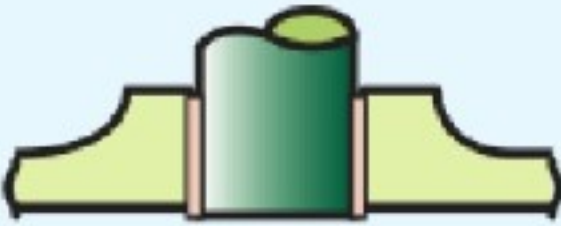
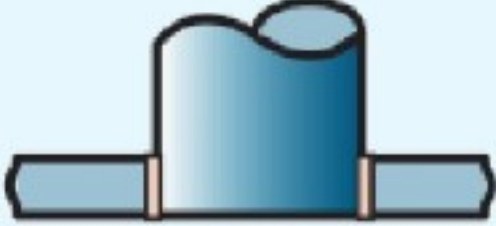
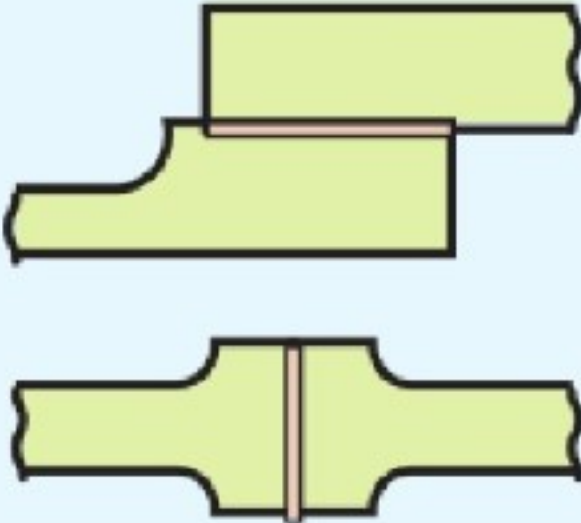
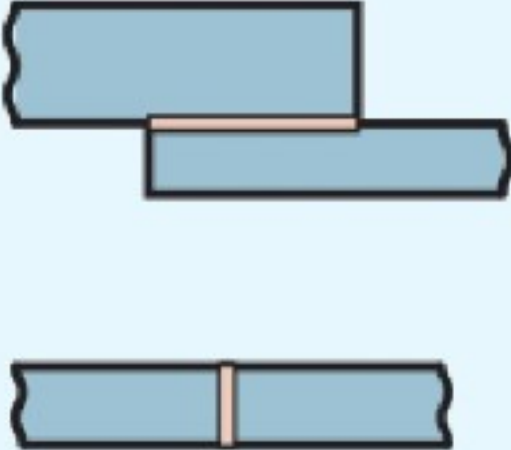
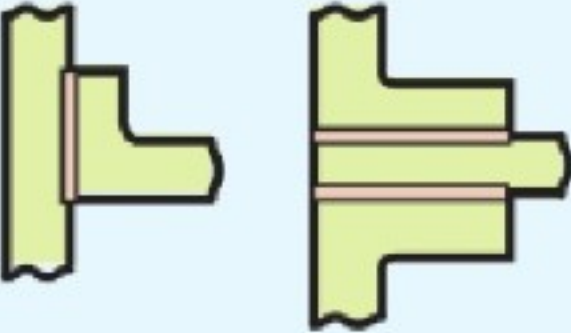
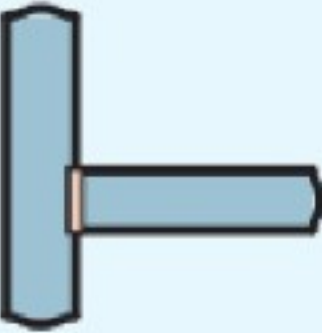


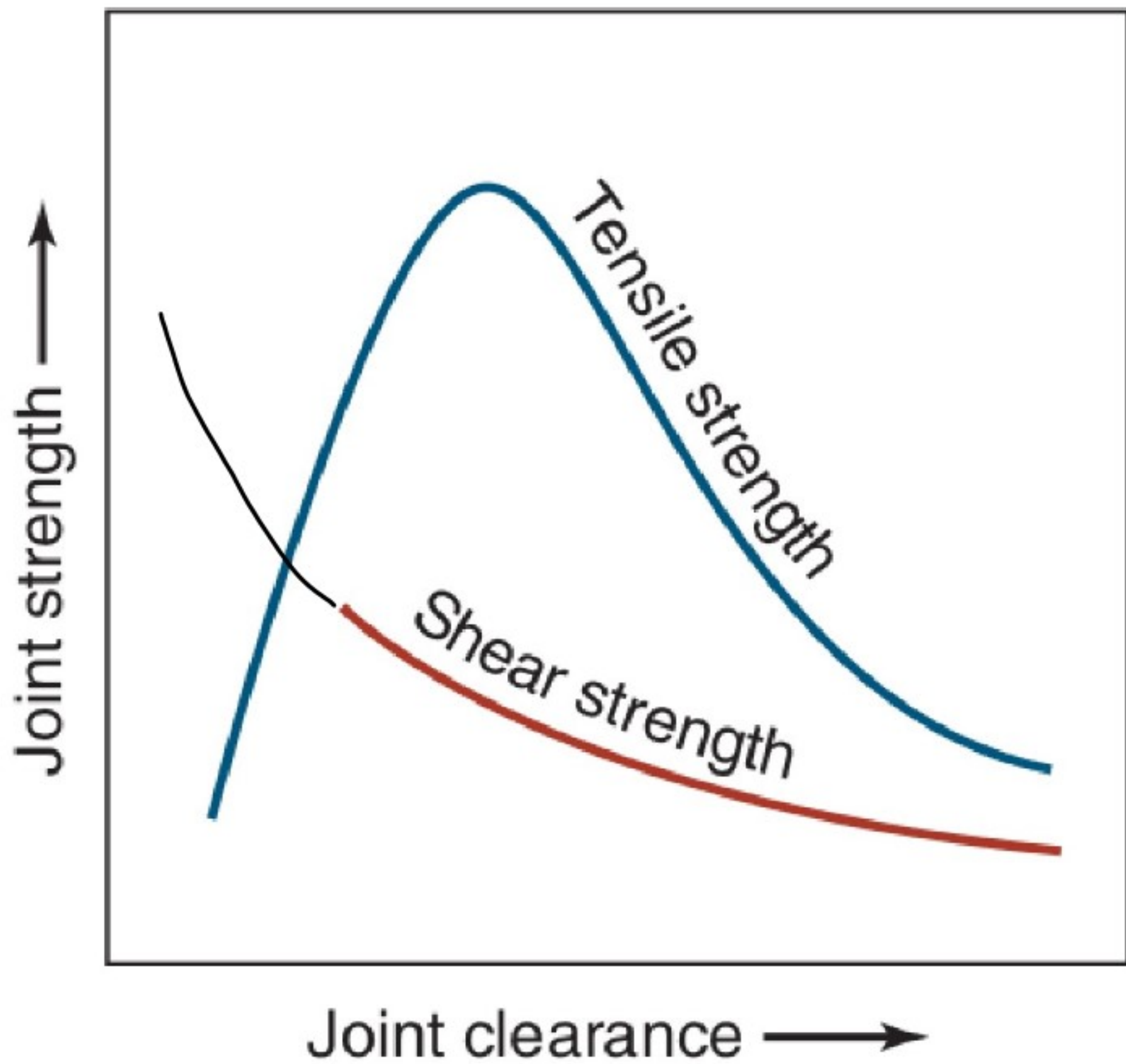
Soldering Aluminium Difficult



<b>Base metal</b>	<b>Filler metal</b>	<b>Brazing temperature (°C)</b>
Aluminum and its alloys	Aluminum–silicon	570–620
Magnesium alloys	Magnesium–aluminum	580–625
Copper and its alloys	Copper–phosphorus and gold-copper-phosphorus	700–925
Ferrous and nonferrous (except aluminum and magnesium)	Silver and copper alloys, copper–phosphorus, copper-zinc	620–1150
Iron-, nickel-, and cobalt- based alloys	Gold-copper and gold-paladium	900–1100
Stainless steels, nickel- and cobalt-based alloys	Nickel–silver	925–1200



Good	Poor	Comments
		<p>Too little joint area in shear</p>
		<p>Improved design when fatigue loading is a factor to be considered</p>
		<p>Insufficient bonding area</p>



# Solders

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<u>Tin-lead</u>	General purpose
Tin-zinc	Aluminum
Lead-silver	Strength at higher than room temperature
Cadmium-silver	Strength at high temperatures
Zinc-aluminum	Aluminum, corrosion resistance
Tin-silver	Electronics
Tin-bismuth	Electronics

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In Brazing Parts are heated

Torch

Furnace

Induction

Resistance

Dip

Welding

Same Material

Heat

Filler

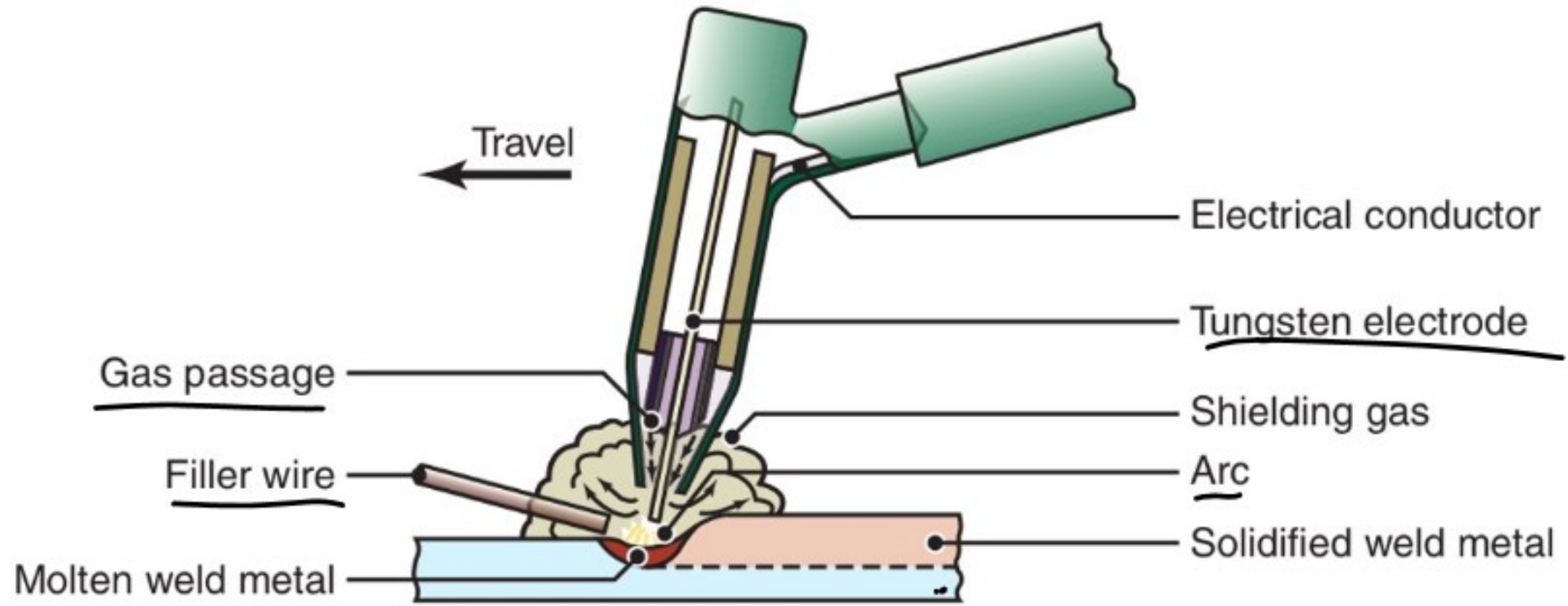
Shielding Gas

TIG

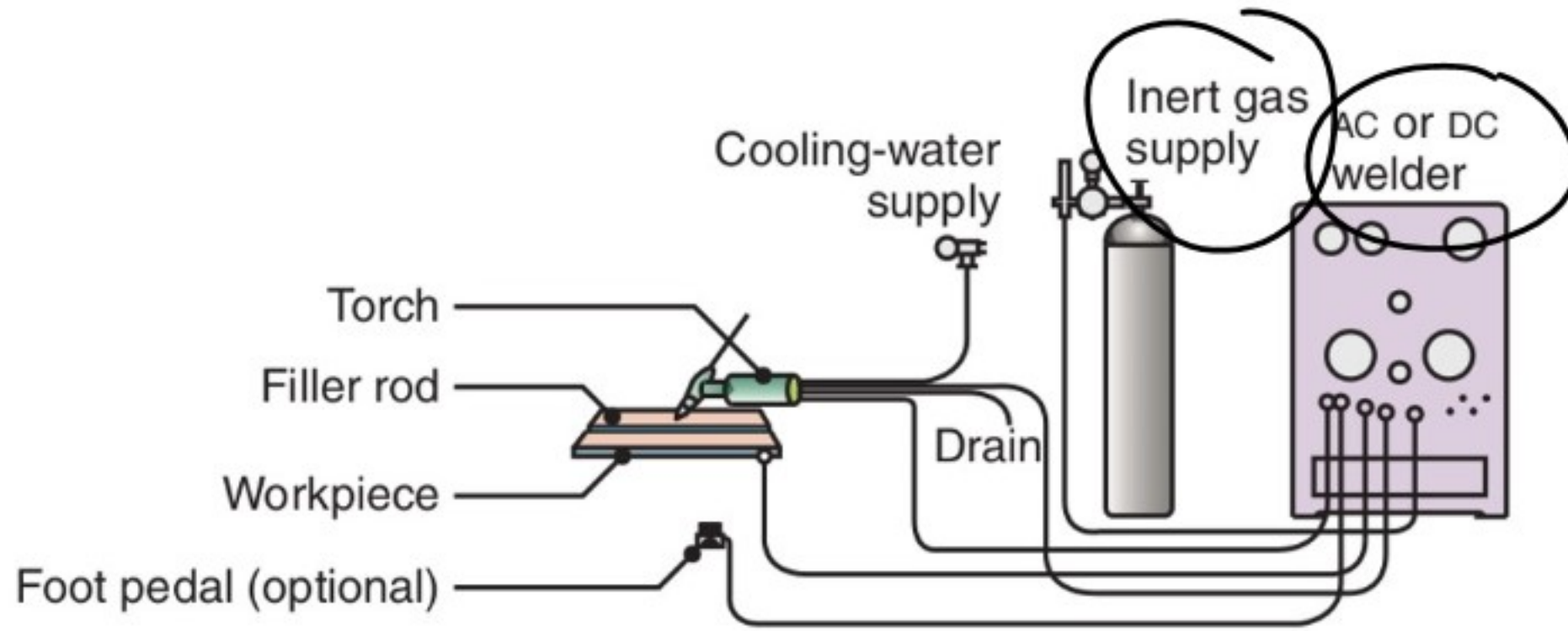
Tungsten

Inert

Gas

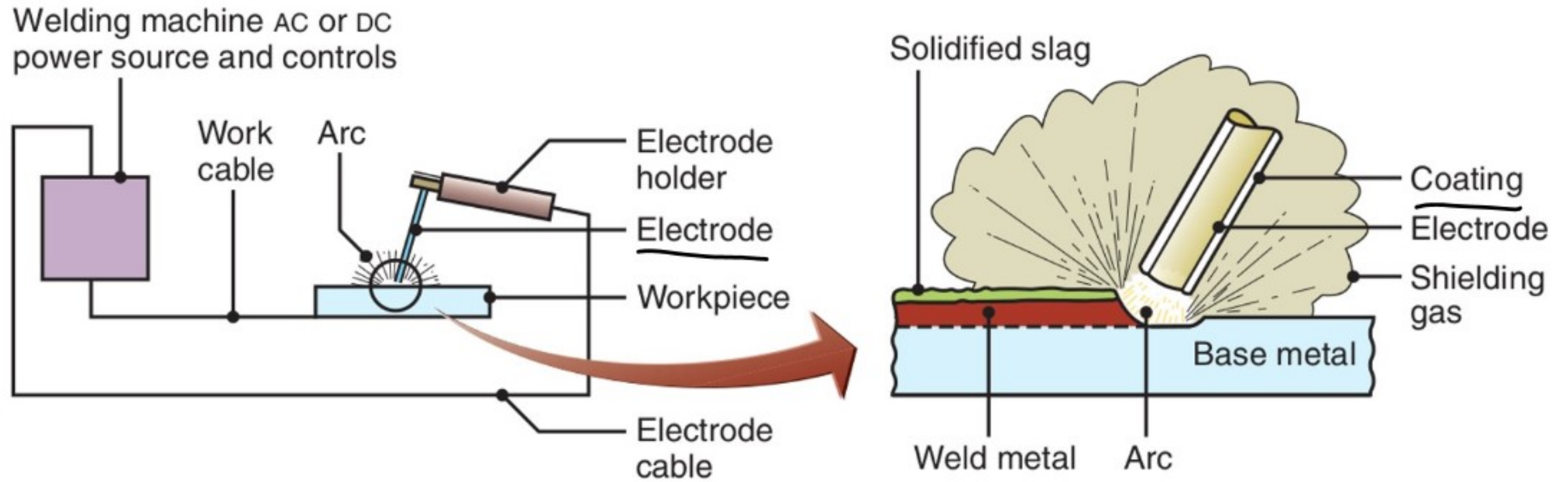


(a)



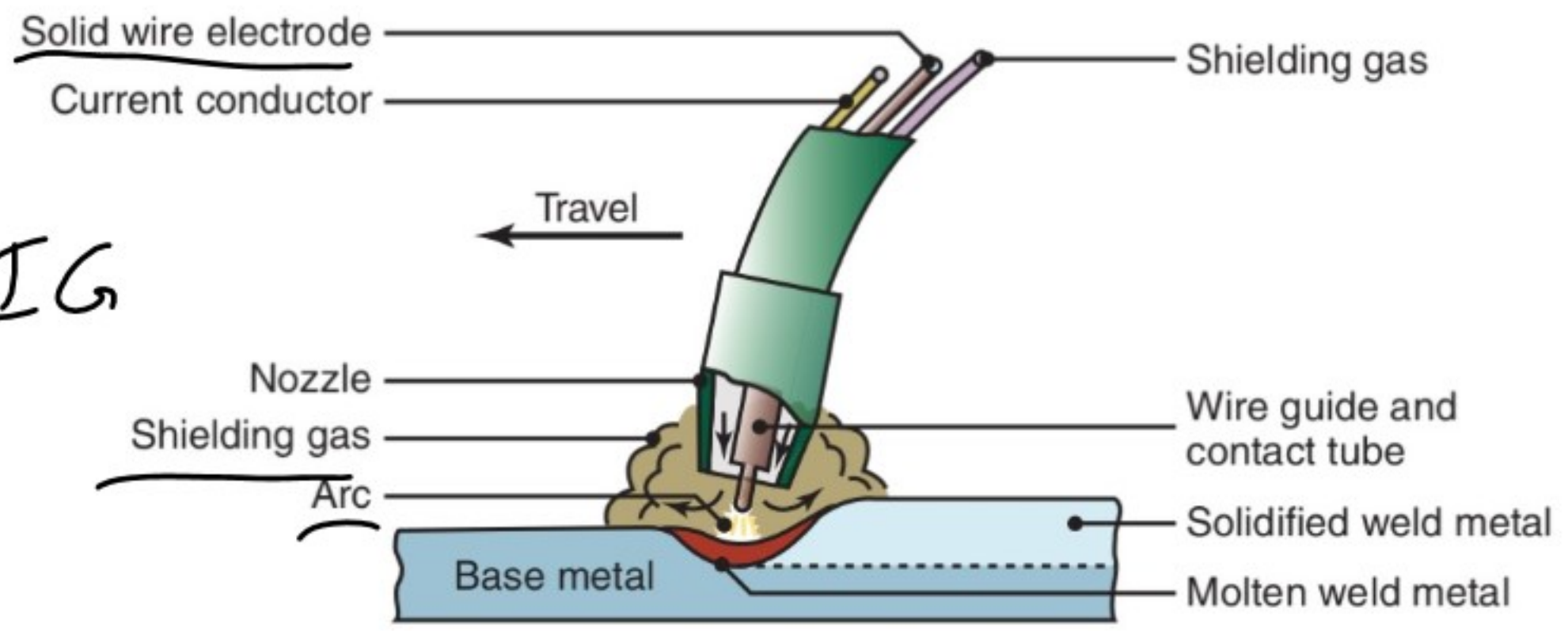
(b)

# Stick Welding

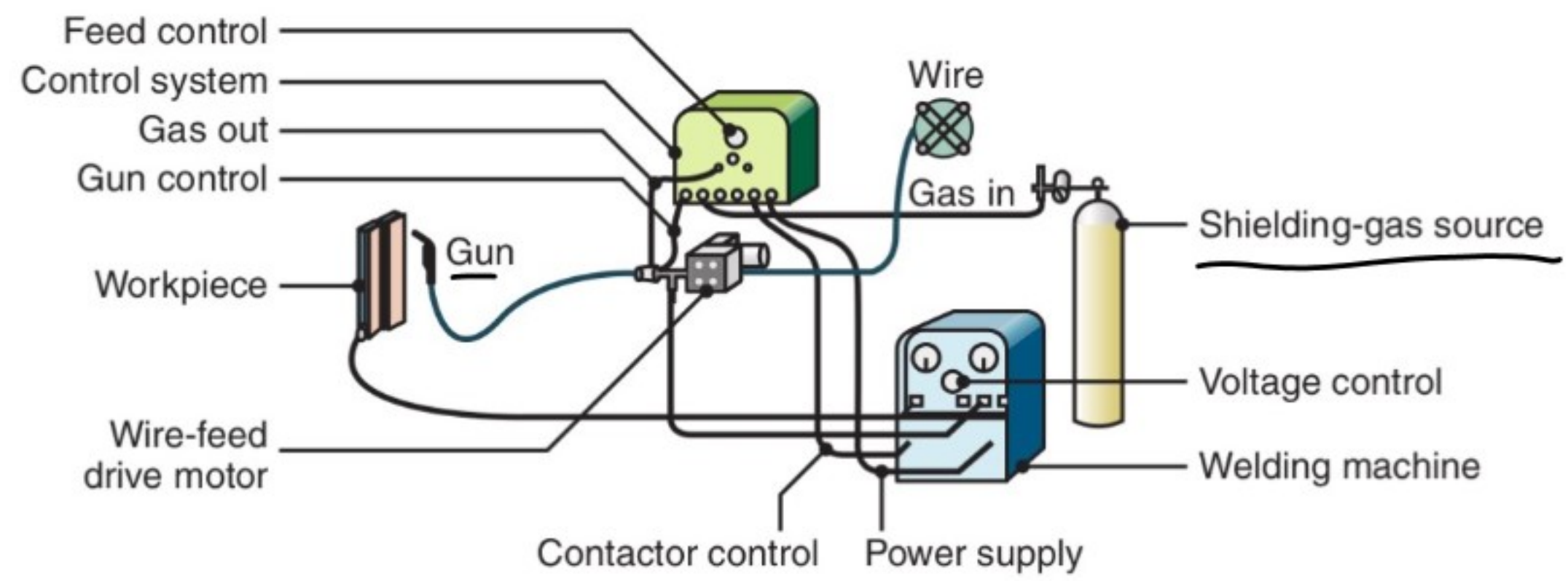


Metal  
Inert  
Gas

MIG



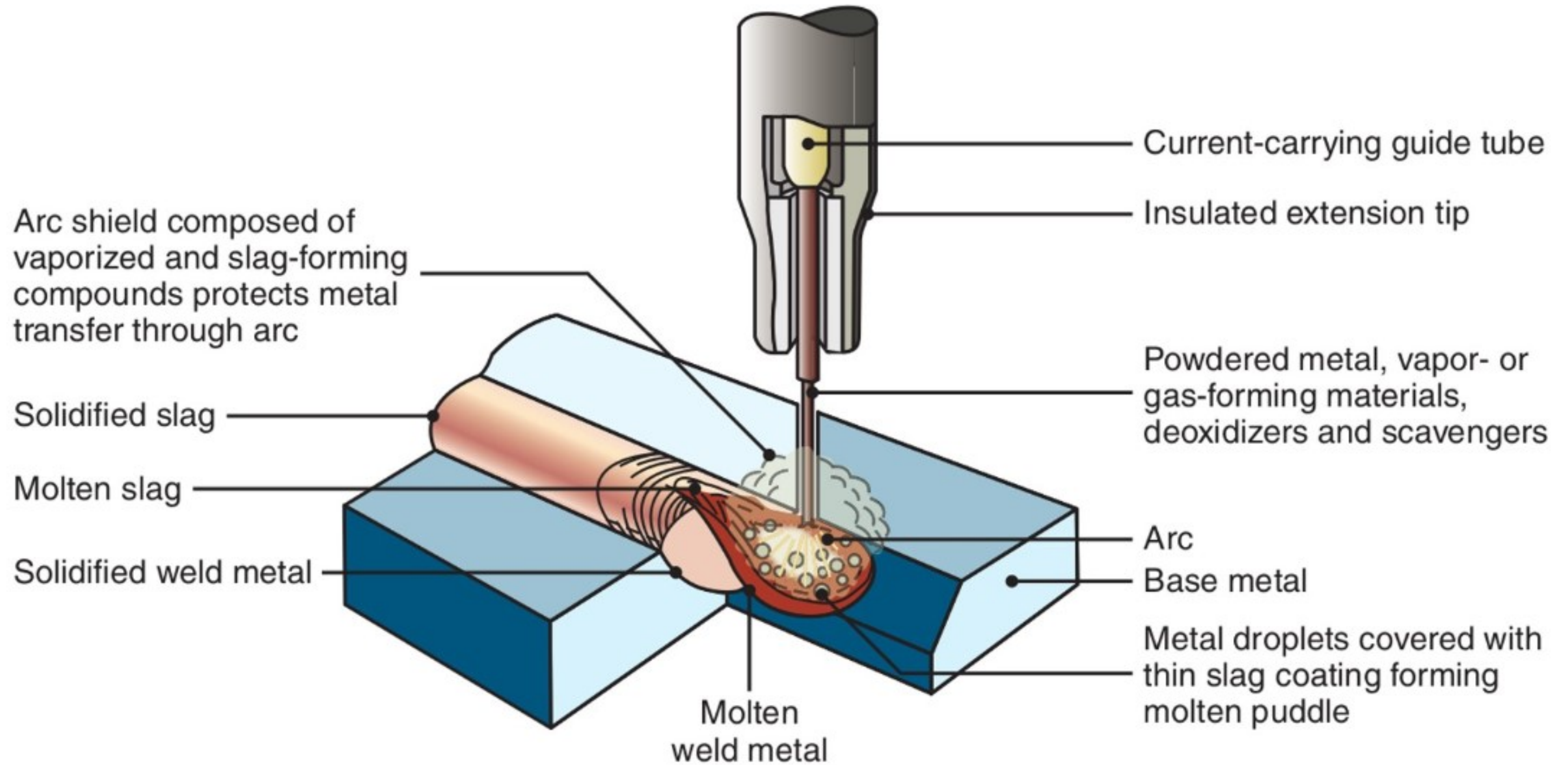
(a)



(b)



# Flux Core



# Submerged Arc

