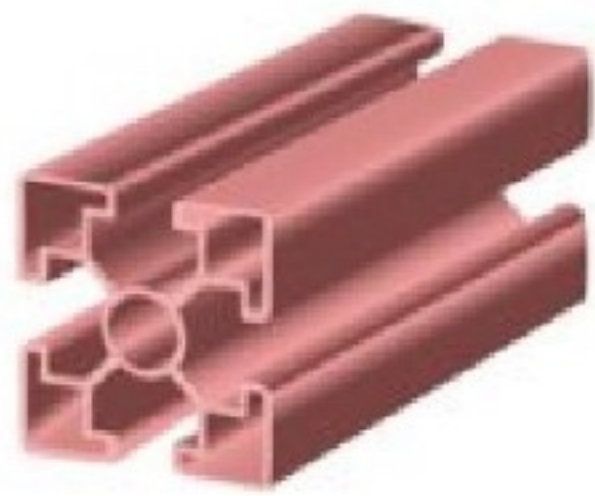


# Assignment 1

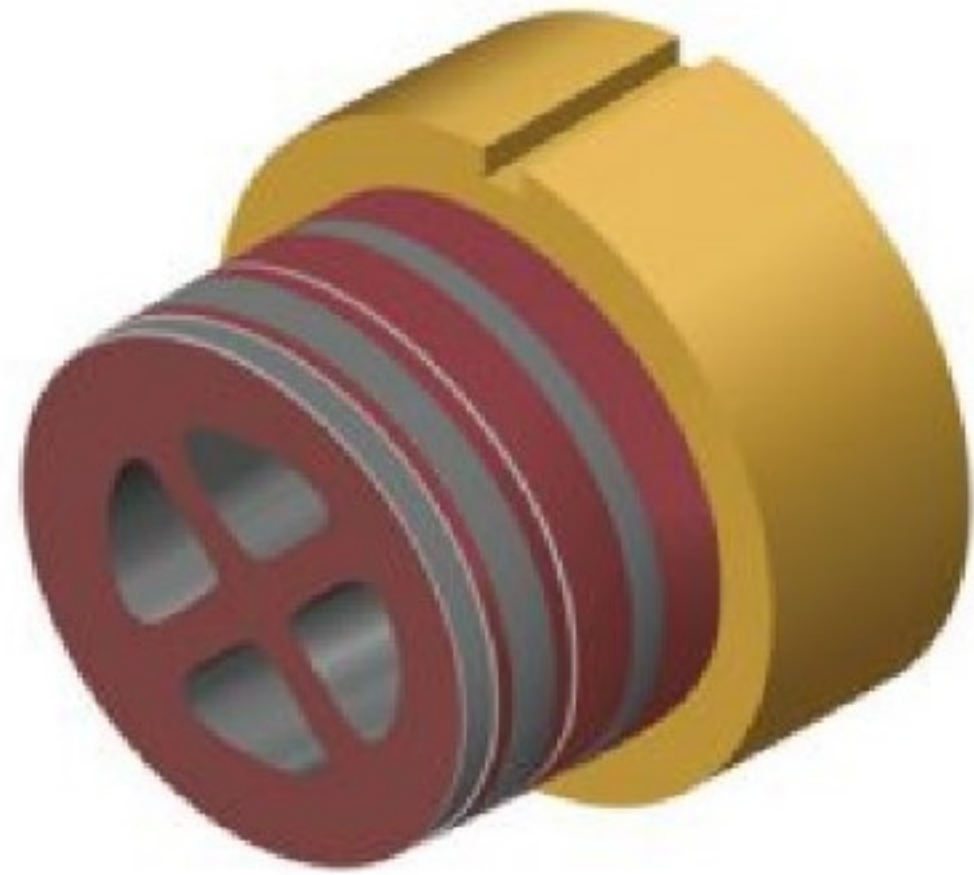
No posts were too long

## Office Hours

Friday 1:00 - 2:00



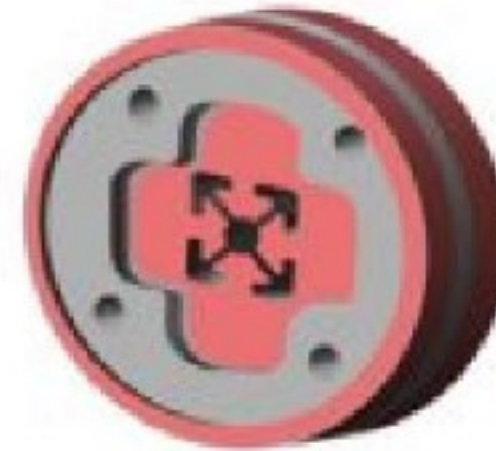
Product  
hollow shape



Hollow die assembly view



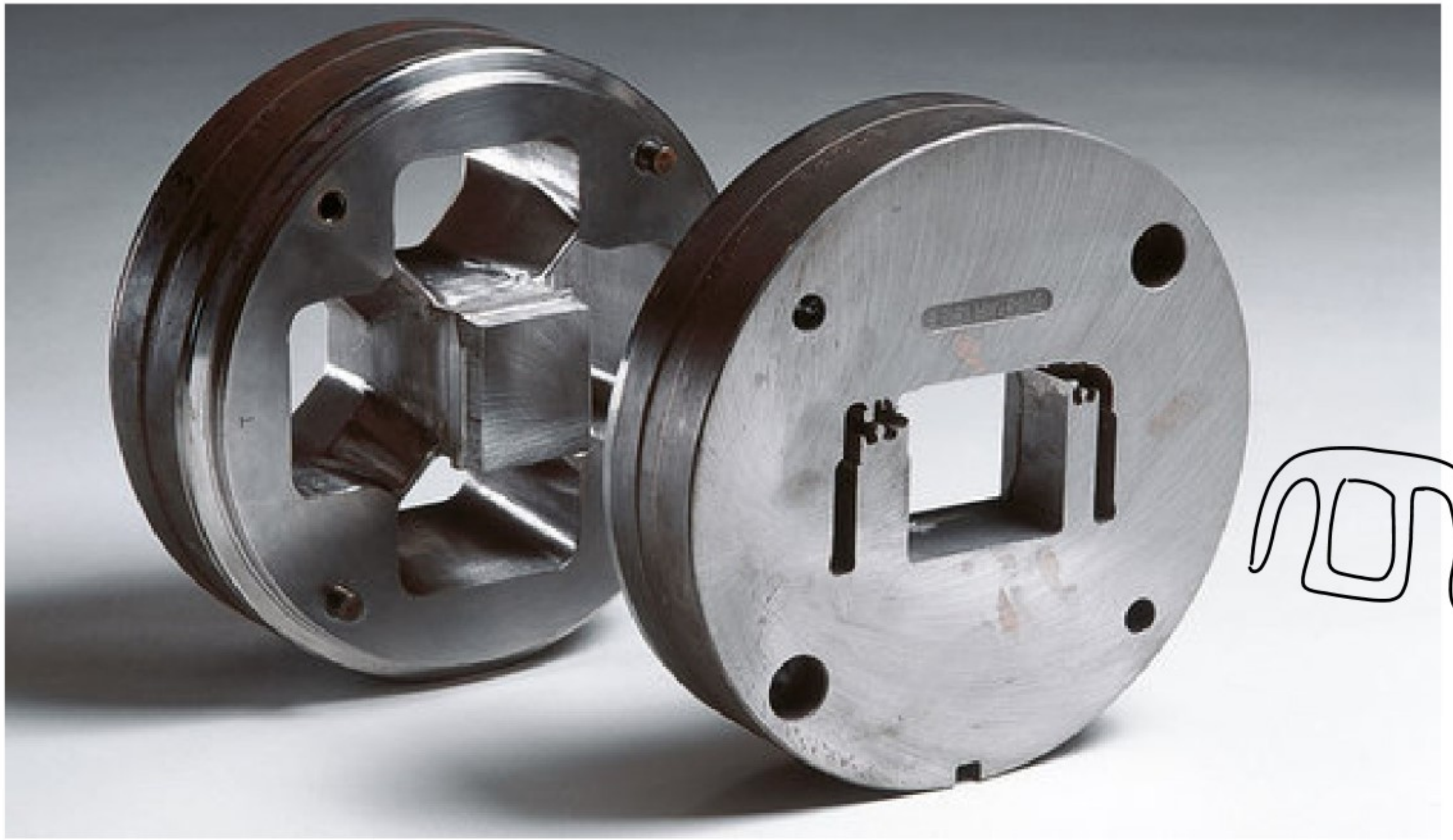
Mandrel



Die cap



Bolster







# Adhesives

Cyanacrylate

CA

Super glue

~~Duct~~  
Duct

PSA

Pressure

Sensitive

Adhesive

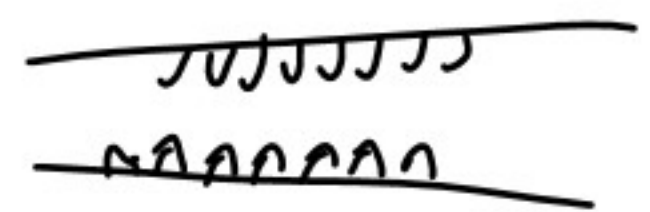
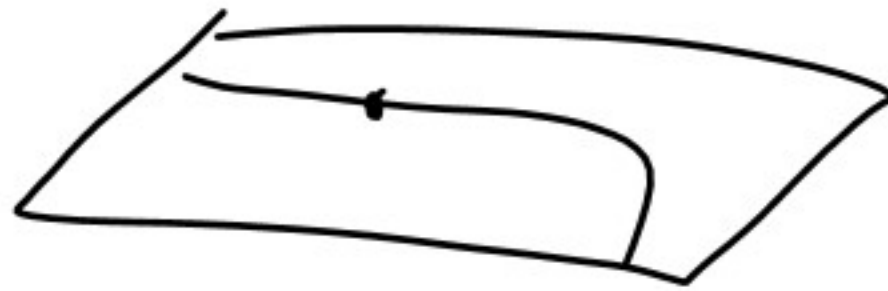
Epoxy

Water-based

Silicone

Hot glue

Acrylic



CA



Hot Glue



PSA

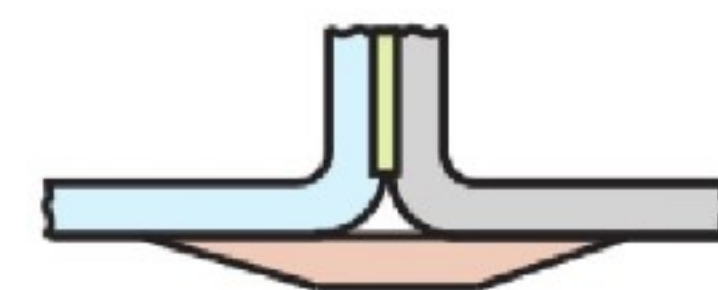
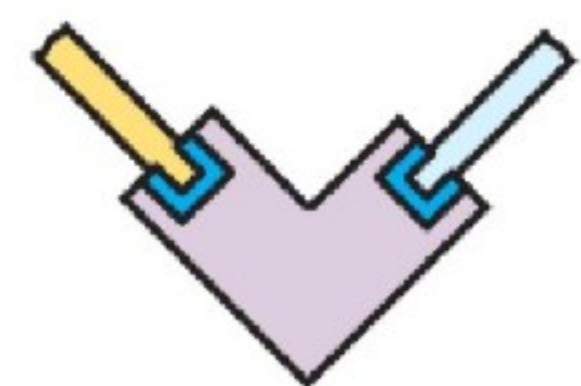
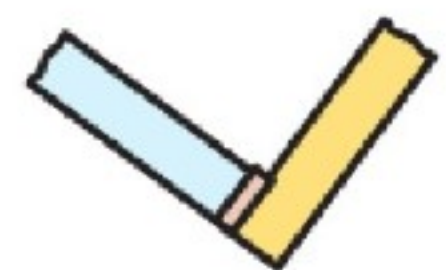
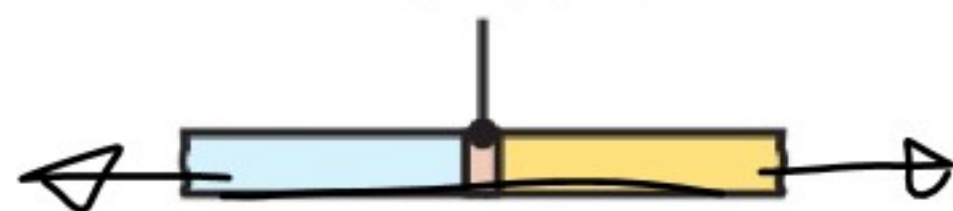


Poor

Good

Very good

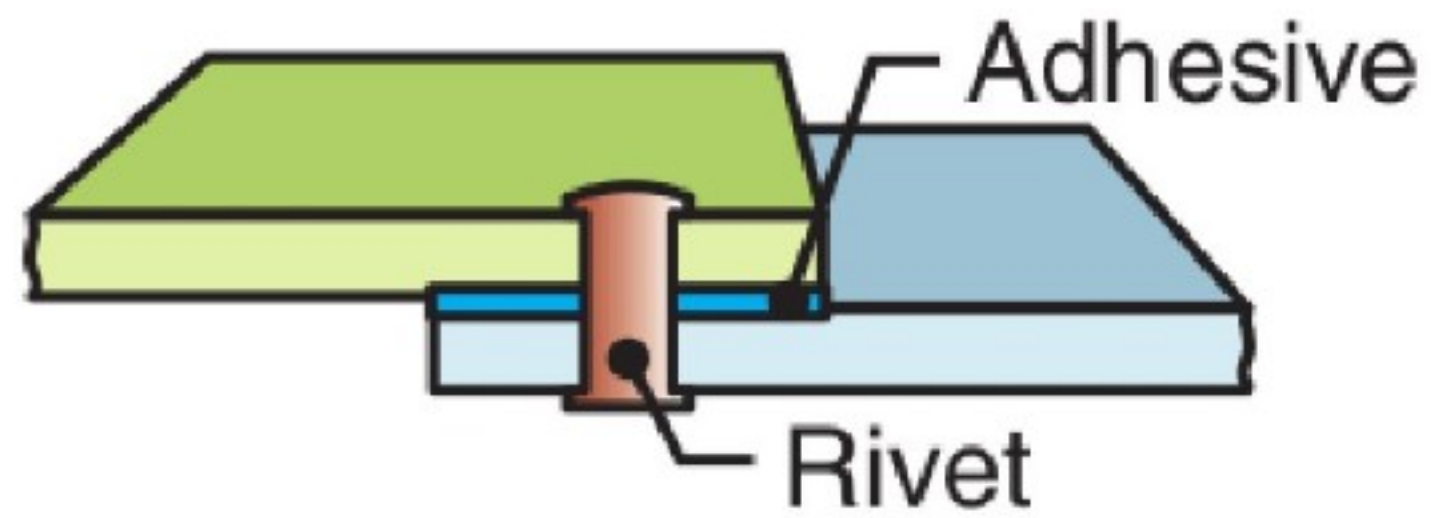
Adhesive



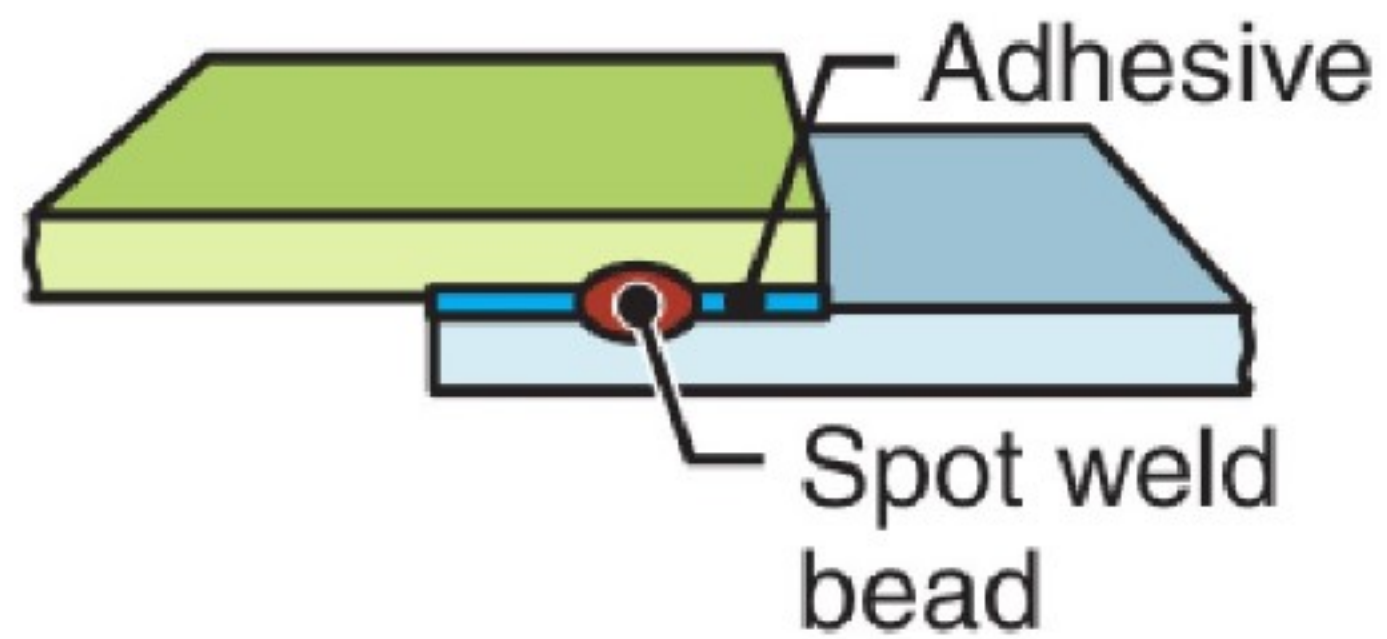
(a)

(b)

(c)



(a)



(b)

## Soldering / Brazing

Soldering is done at less than  $870^{\circ}\text{F}$

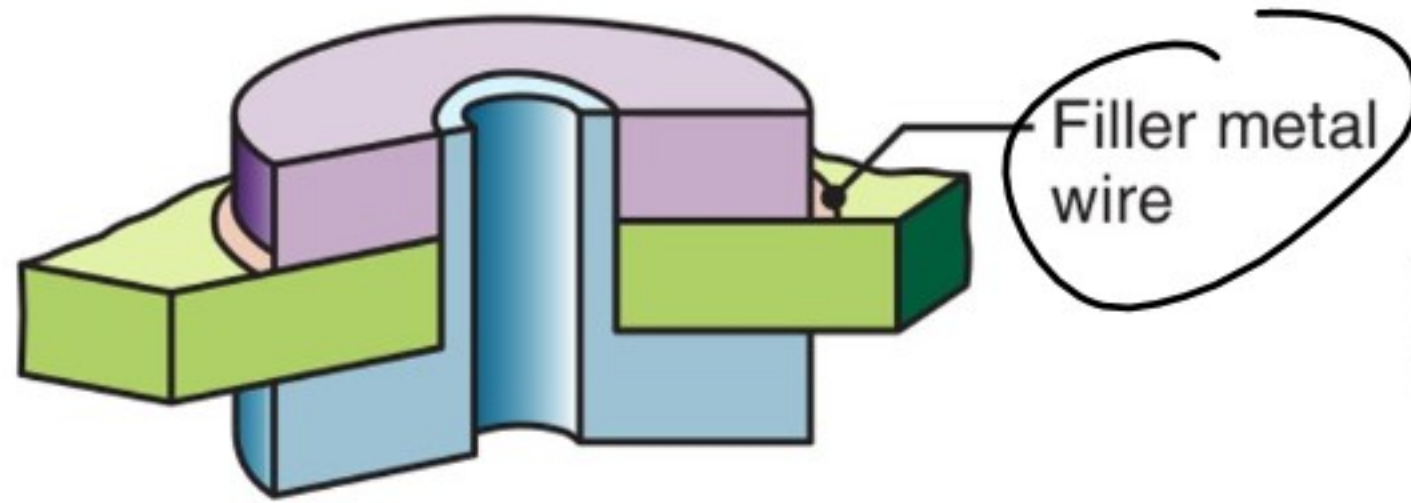
Brazing is done at more than  $870^{\circ}\text{F}$



Flux

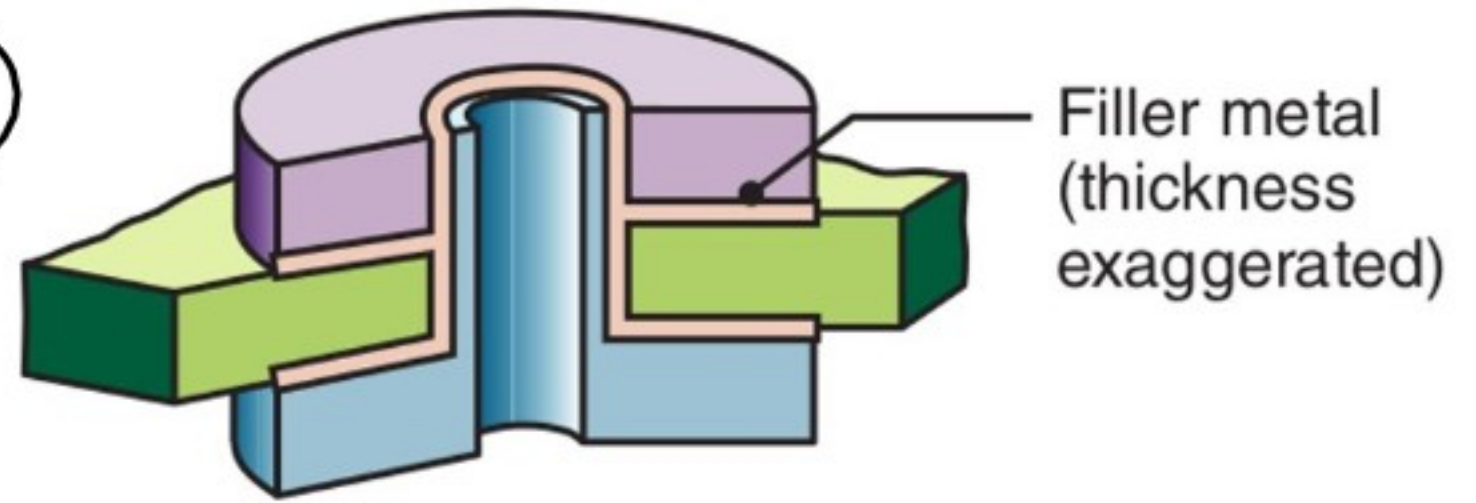
Torch  
Induction

Furnance  
IR  
Dip



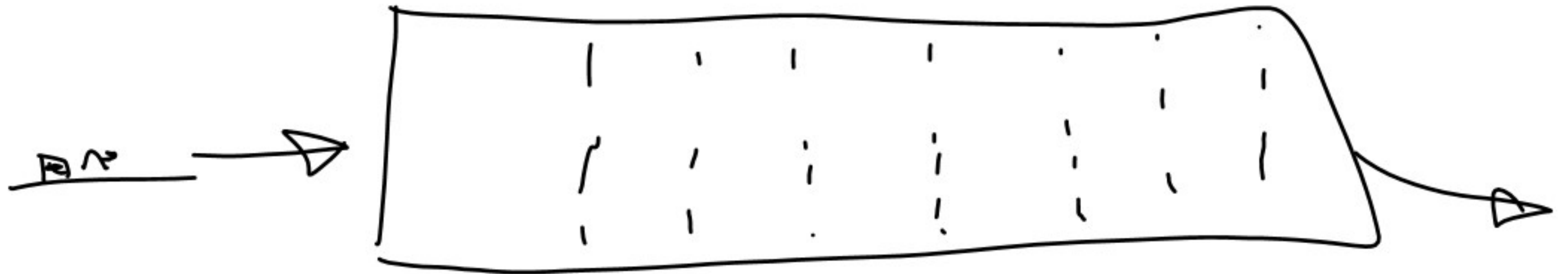
Filler metal wire

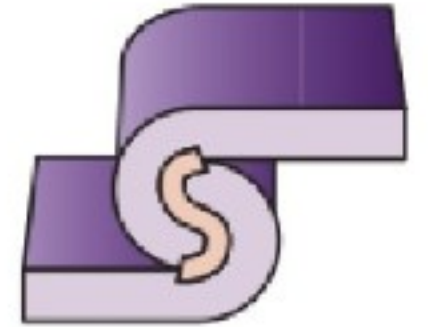
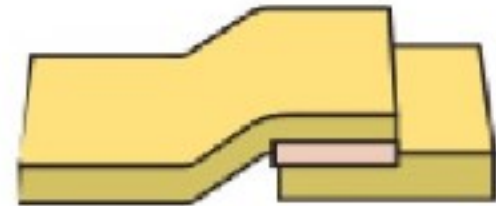
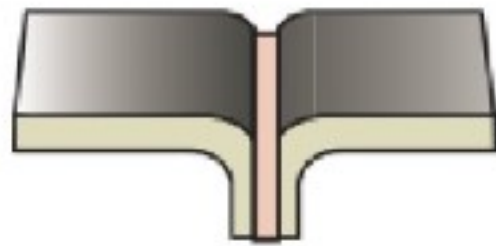
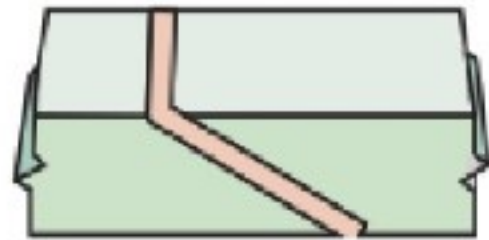
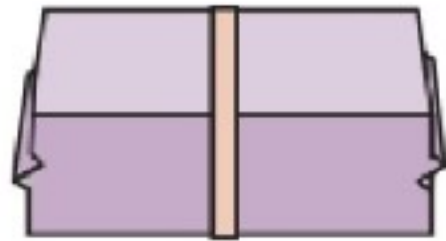
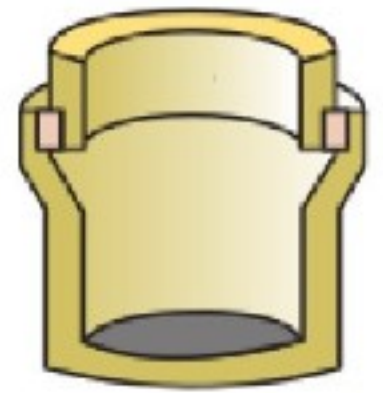
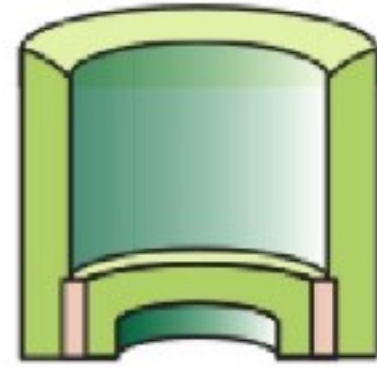
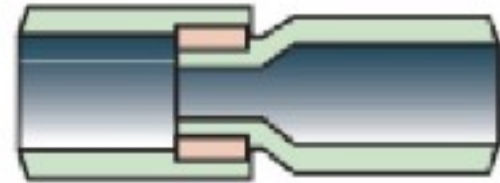
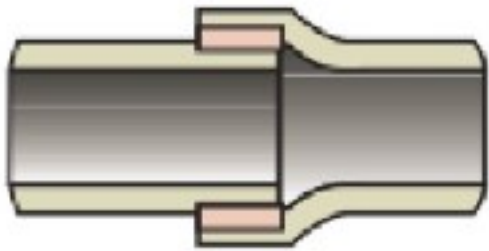
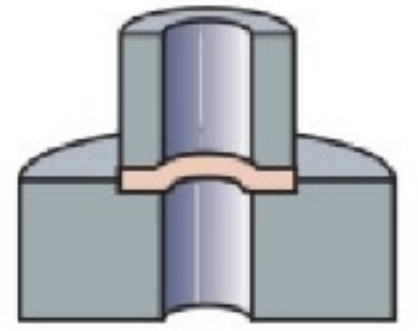
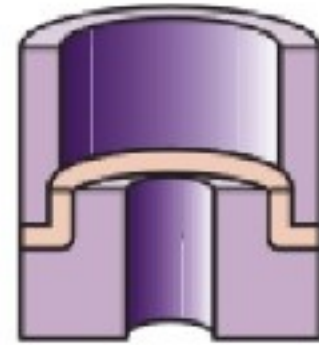
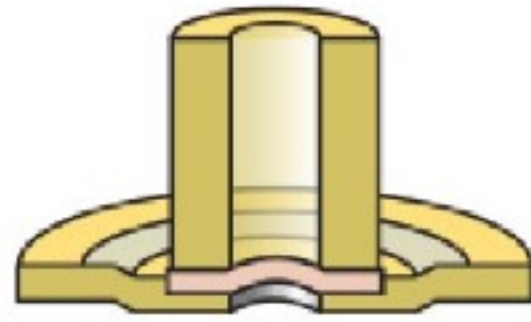
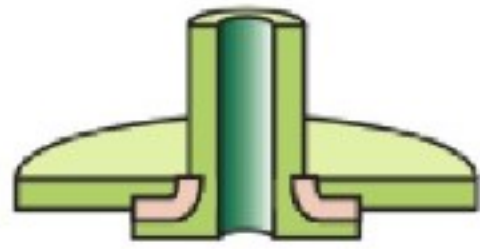
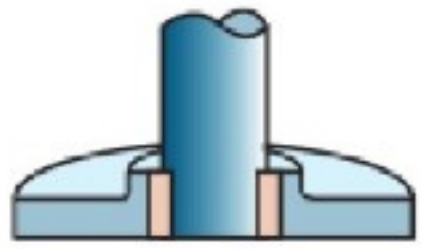
(a)



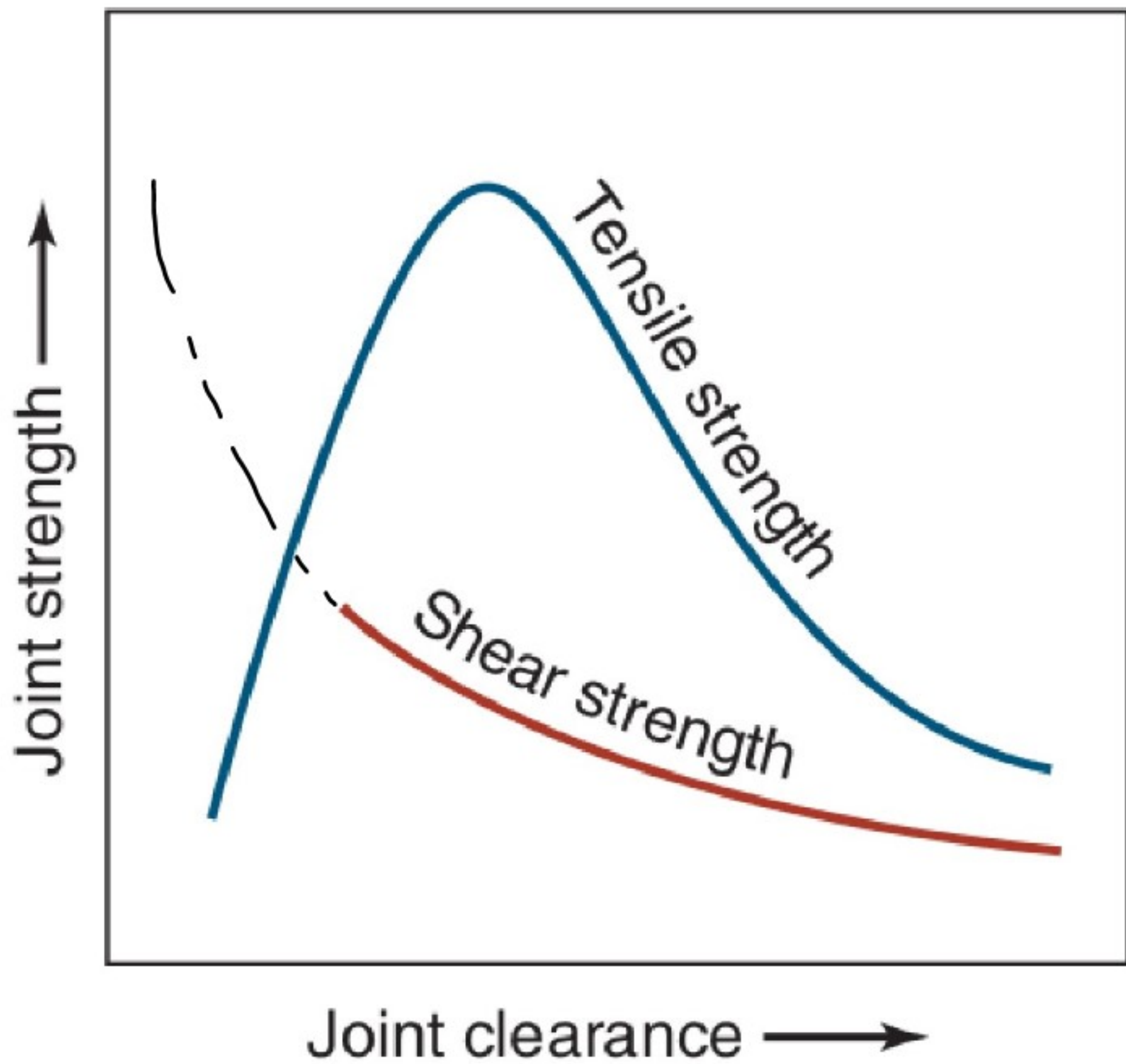
Filler metal  
(thickness exaggerated)

(b)





<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





---

Tin–lead	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

---

Welding

Heat

Filler

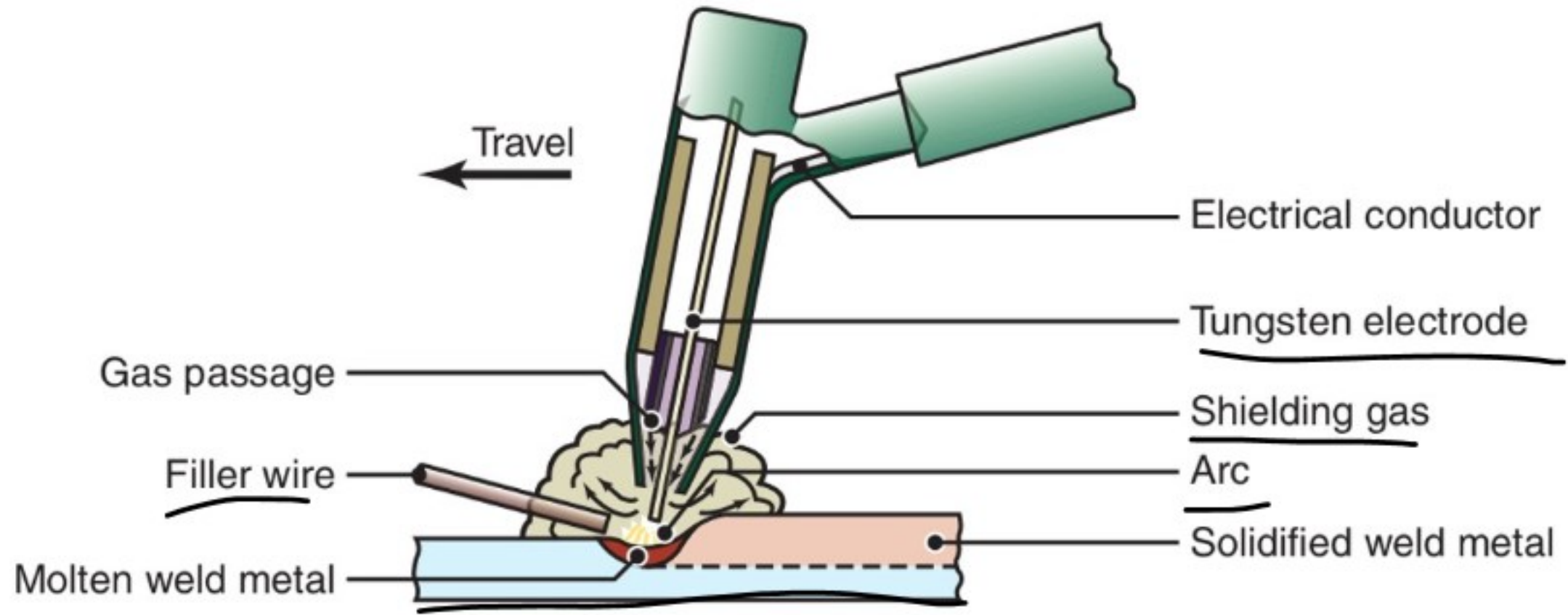
Shielding Gas

T I G

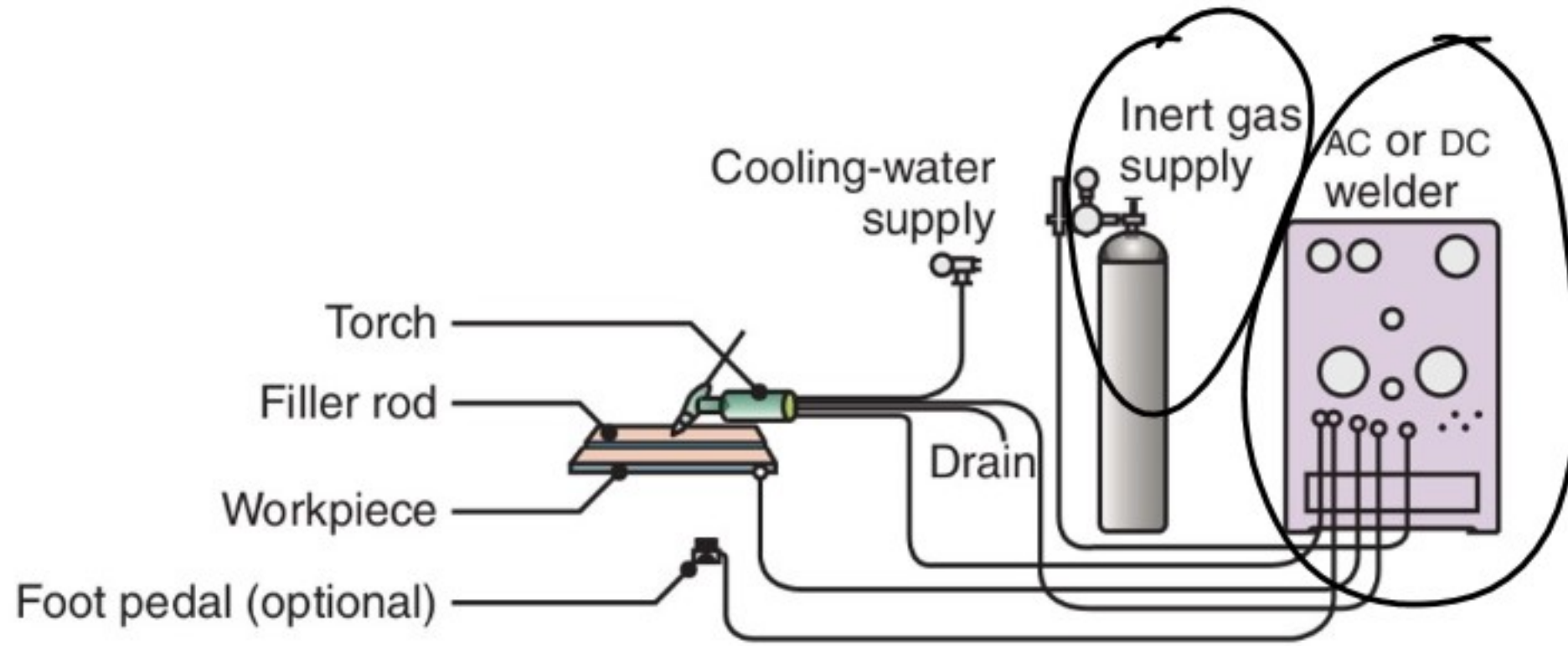
Tungsten

Inert

Gas

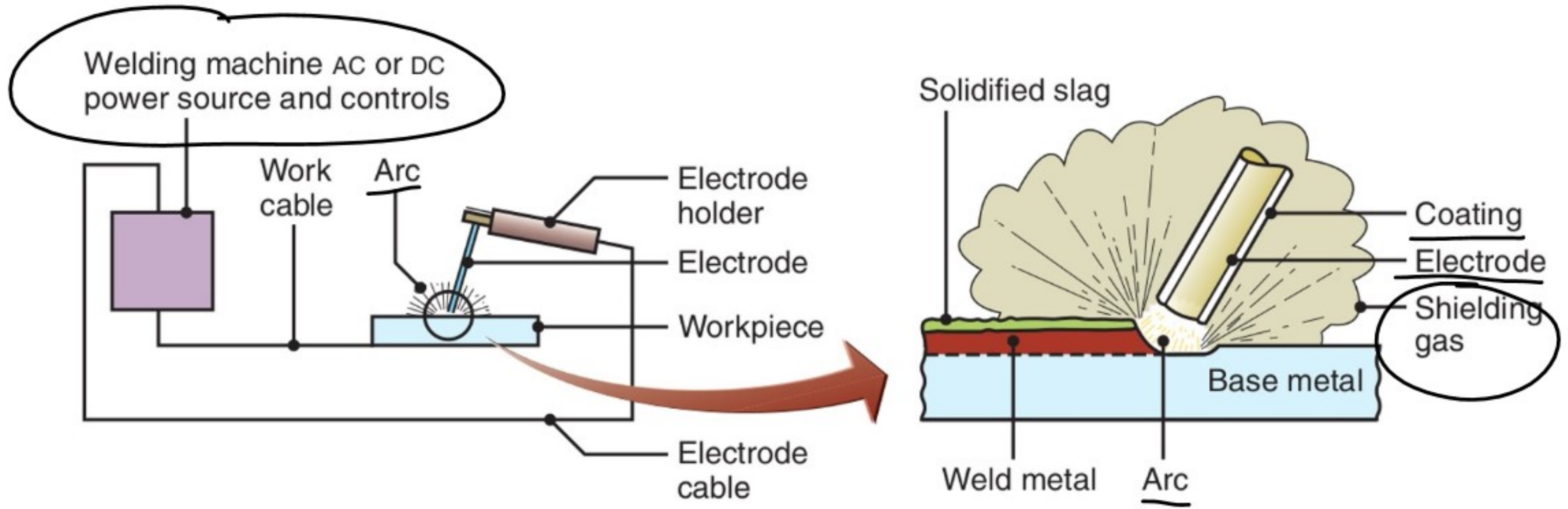


(a)



(b)

# Stick welding





MIG

Meta)

Inert

Gas

