

# Sous Vide 101

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# Outline

- What is sous vide?
- What can it do?
- **Sous vide machines**
- **Making a sous vide machine**
- Vacuum bagging
- Questions and Discussion

# What is Sous Vide?

- “Under Vacuum”
- Cooking food in vacuum bags at a constant temperature in a water bath
- First used in 1974 by Georges Pralus in Roanne, France

# What can it do?

- Great for meats
  - Beef, Pork, Chicken, Turkey, Fish
- Many vegetables are good
  - Root vegetables are good
  - Leafy greens generally don't work
  - High temperatures (85C/185F)
- Fruit is less common
  - Some people do pickled fruits in sous vide
- Some people do yogurt
- Breads, grains, pasta not done in sous vide
  - Relies on steam escaping, to some extent

# What can it do?

- Eggs
  - <https://www.chefsteps.com/activities/the-egg-calculator>

A large egg  
cooked for  
40 minutes



130°F (54.4°C)



135°F (57.2°C)



140°F (60°C)



145°F (62.8°C)



150°F (65.6°C)



155°F (68.3°C)



160°F (71.1°C)



165°F (73.9°C)

<https://www.serious-eats.com/eggs#sous-vide-eggs>

# Food Safety

- Food safety is time and temperature
  - Meats must be minimum 55C/131F
  - Poultry must be minimum 60C/140F
  - Cook time is generally 1 hour per ½ inch of maximum thickness
- [https://www.fsis.usda.gov/wps/wcm/connect/9ab2e062-7ac8-49b7-aea1-f070048a113a/RTE\\_Poultry\\_Tables.pdf?MOD=AJPERES](https://www.fsis.usda.gov/wps/wcm/connect/9ab2e062-7ac8-49b7-aea1-f070048a113a/RTE_Poultry_Tables.pdf?MOD=AJPERES) (Link doesn't work right now)
  - [http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/EH/FPS/Food/SVGuidelines\\_FinalforWeb.pdf](http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/EH/FPS/Food/SVGuidelines_FinalforWeb.pdf)

# Sous Vide Machines

- Either DIY or self-contained commercial units
- Basic Components
  - Water Pump
  - Heater
  - Temperature Probe
  - PID Controller

# Self-Contained Sous Vide

- ChefSteps Joule
- Many generic units
- Generally \$60-\$100
- Convenient
- App Controlled
- Bring your own pot
- Low Power
- “Unitasker”





# Build Your Own Sous Vide

- Buy separately:
  - Water Pump
  - Heater
  - PID Controller, relay, probe
  - Wiring and outlet



# Build Your Own Sous Vide

- Powerful
- Generic
- Customizable
- Fun Project
- Not so convenient
- No app



# Sous Vide Parts – Water Pump

- Aquarium Pumps
  - High Volume
  - Easy
  - Submersible
  - Cheaper
  - Some can't take the heat
- Outboard Pumps
  - Usually used for brewing
  - Fully heat tolerant
  - High volume
  - Requires extra mounting
  - Requires hoses
  - More expensive



# Sous Vide Parts – Immersion Heater

- Big Heater
  - 1500W
  - Has guard
  - High temperature cutoff
- Small Heater
  - 300W
  - No high temperature cutoff



# PID Controller, Relays, Wiring, Probe

- Integral with Outlets

- Built-in temperature probe, relays, outlets
- Some have Wi-Fi
- 1100W limit
- Limited customizability

- Discrete

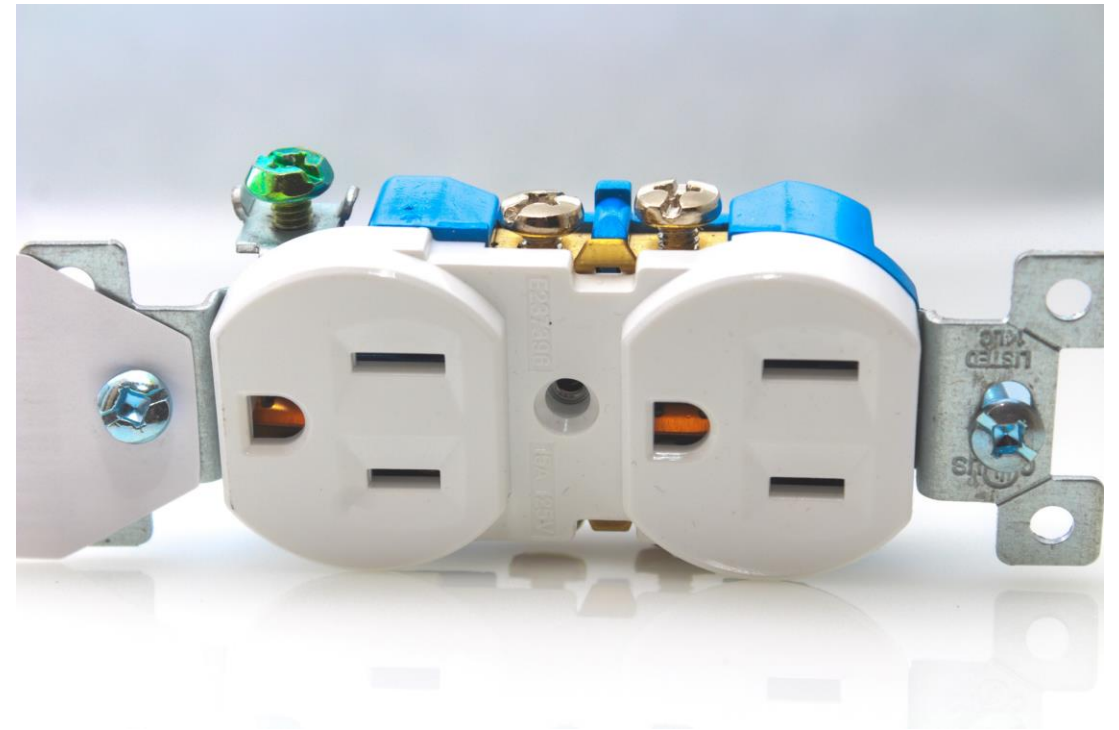
- Any power limit
- Highly customizable
- Get all the parts yourself





# Sous Vide Parts – Wiring and Outlet

- Not needed in integral controller
- Make sure it's sized for your needs (15 amp vs. 20 amp)
- [https://en.wikipedia.org/wiki/American\\_wire\\_gauge](https://en.wikipedia.org/wiki/American_wire_gauge)



# Vacuum Bagging

- Vacuum Bag
  - Can't accidentally unseal
  - Has other uses
  - Works better with marinades
  - Bags are any size
  - Expensive
- Ziploc Technique
  - Easy
  - Cheap
  - Works
  - Bag can come open
  - Bags are fixed sizes



# Simple Recipe – Chicken Breast

- Water bath: 63C/145F
- 2 chicken breasts per bag
  - Pinch of salt and pepper applied to each breast
- Cook minimum 1.5 hours, maximum 4 hours
- Eat or freeze directly in bag
  - Can also reheat in water bath at the same temperature

