

Seasoning Mixer

Mechanical Engineering

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Abstract

The seasoning mixer is designed to mix up to 25 pounds of dry-rub seasoning. The mixer operates by spinning a drum around a pivoted axis. Fins welded within the drum cause the seasoning to separate and improve the quality of the mix. The mixer is powered by a motor. The motor is operated on a standard electrical outlet.

Constraints

- Able to mix up to 25-lb of dry seasoning
- 7 Gallon maximum volume as overflow storage
- Effective at breaking up clumps of seasonings
- Low power use

Mechanism

- Rotates with a winch motor
- Can tilt at several different angles in order to allow for more or less seasoning volume

Components

- Lower Frame
- Upper Frame
- Drum
- Motor & Motor Mount

Budget

- Components = \$1,300
- Spices = \$148
- Small Jars = \$24
- Storage Containers = \$28
- ❖ Total Budget = \$1,500

Design Layout



Testing

- SolidWorks testing done in order to avoid failure due to stress
- Once fabricated, real life testing will be done in order to ensure the drum rotates efficiently
- Actual rub mix must be made to test effectiveness of inner fins

Sponsors/Conclusion

Follow these steps for some tasty BBQ at home

1. Tri-tip
 - Trim tri-tip to remove excess fat
 - Coat all sides of the tri-tip with the rub generously
 - Put in a gallon ziplock with a light drizzle of olive oil and marinate in the refrigerator for 2-16 hours
 - For a BBQ grill: place the tri-tip on the grill cook for about 5 minutes on the first side. This may take more or less time; once you see a dark brown crust develop you're ready to flip the meat. The second side of the steak will take a little longer, about 8 minutes. After both sides are beautifully brown and crusted, take them off of the grill and let them continue cooking on indirect heat until they reach desired doneness. We cook to 145° Fahrenheit for medium.
2. Baby Back Ribs
 - Remove silverskin (membrane) from the back of the rack
 - Rub olive oil over the meat
 - Cover the ribs with the rub
 - BBQ indirectly over medium heat for 30 minutes on both sides
 - For additional flavor, you can baste the meat in your favorite BBQ sauce during the last 5-10 minutes of cooking

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