Austin Appleton

ATLS 5151

10/11/21

Sparks in Motion

This picture was taken in my metal studio, where I work as a sculptor. We use rotary angle grinders with a flap wheel to chase welds, basically industrial sanding. I began considering this shot for my submission because it was just a beautiful display of the forces we imbue into our sculptures. After a while, sparks flying becomes more or less obsolete because 50 hours of grinding metal will desensitize anyone to anything. For me, it’s a nice representation of where I’ve come and where I am going. Like a tiny little spark with a tremendous amount of energy. The person in the shot is my mentor, Josh Weiner.

To set up the picture, I stood just outside the plane in which sparks were flying. It is dimly lit in my studio so the shot came out balanced and mutable in photoshop. Where I was able to edit the picture to bring more distinct colors to the oxidation of the particles. This flow is created from the friction of the flap wheel on steel and oxidation of the particles creating heat.

The angle grinder spins at 11,000 rpm, with a 6.0 amp motor. It has .91 horsepower as well. The point of contact is small, only about an inch at most, and goes down to 1/8th of an inch. Each spark is just a tiny steel particle that becomes electrified by the friction created by the angle grinder. The distance the sparks fly is determined by the size of the particles, the amount of force the grinder is generating and the angle the sparks are flying in.

I used my iphone for this picture, because I was a little worried about bringing my camera into the shop. I used a 60 fps setting, and should have turned up the fps to maybe 90-100. That way I would see more of the particles and would have a better picture.

1. Guillen, A., Goh, F., Andre, J., Barral, A., Brochet, C., Louis, Q., & Guillet, T. (2019, February 12). *From the microstructure of steels to the explosion of sparks*. Emergent Scientist. Retrieved October 11, 2021, from https://emergent-scientist.edp-open.org/articles/emsci/full\_html/2019/01/emsci180006/emsci180006.html.