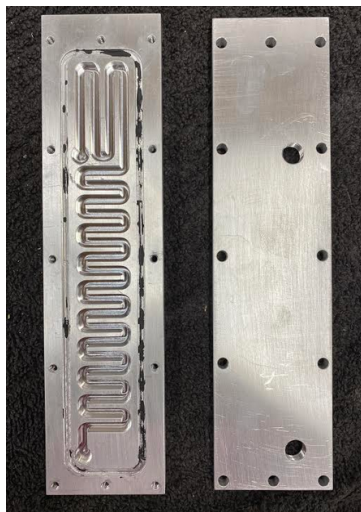


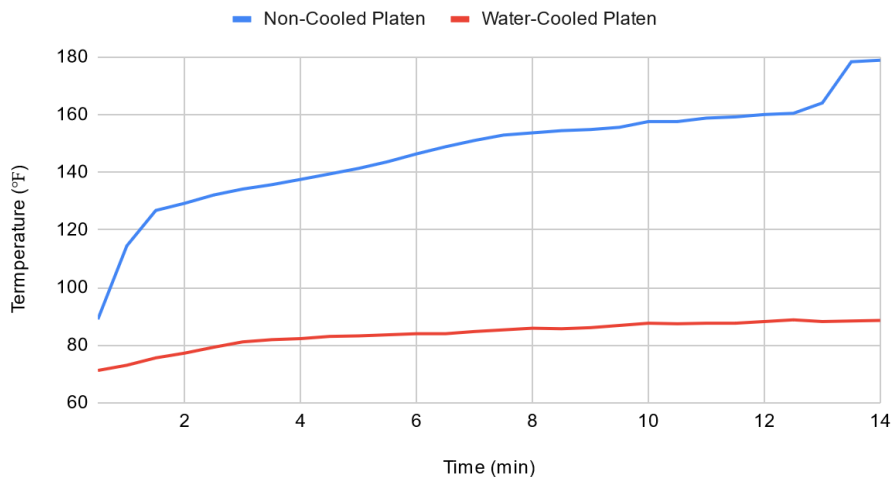
Platen Water-Cooling System

The water-cooling system for a platen pumps water into the top of the platen, where it then winds through to the bottom end. The water is then brought through the bottom wheel of the platen assembly and then through the top wheel. This helps to cool the parts with the highest dependence on temperature. Under high temperatures, the platen can cause contact burns if accidentally touched. Additionally, bearings can fail due to high temperatures. The water-cooling system will transfer heat from the platen and bearings so they remain at a safe temperature.



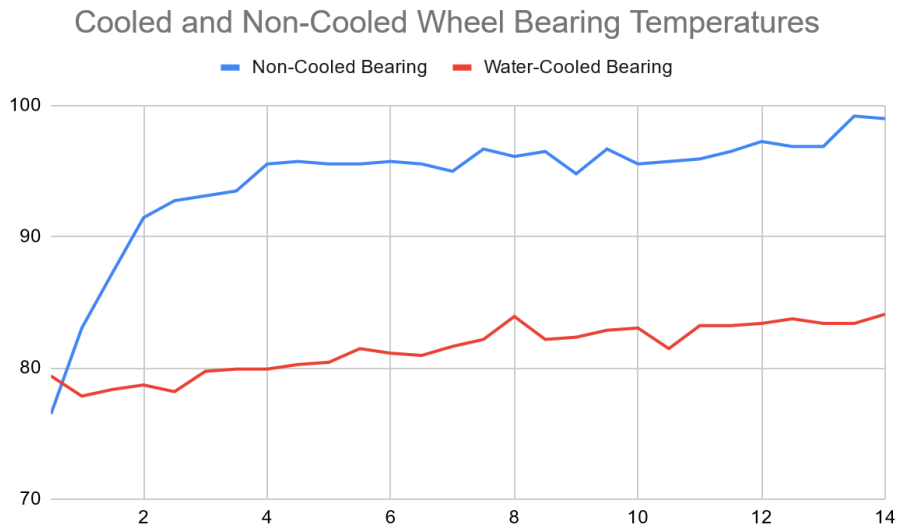
After 15 minutes with constant applied pressure to a 36 grit belt, a platen can reach 180°F. OSHA states that metal surfaces subject to contact and user maintenance should have their temperature limited to 140°F to protect workers from accidental contact burns. While using the water-cooling system, the platen temperature did not reach 90°F after 15 minutes of use with a 36 grit belt.

Cooled and Non-Cooled Platen Back Face Temperatures





During the same test, the wheel bearings that were not water-cooled reached a temperature of 100°F. The failure rating of the bearing housing is 180°F, which was the maximum temperature of the nearby platen. When the water-cooling system was used, the bearing remained below 85°F.



The water-cooling system can also be used with the glass platen attachment. The glass platen alone stays significantly more cool than the metal platen. After 15 minutes of constant applied pressure against a 36 grit belt, the glass platen’s max temperature was more than 80°F less than the metal platen. This temperature difference can be again increased to 100°F less than the metal platen by using the glass platen with the water-cooling system. During this experiment, the back face of the water-cooled glass platen remained consistent with the surrounding room temperature.

