

CRAFTSMAN'S CRIBSHEET

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 Technical
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GRINDING ADVICE YOU PROBABLY DIDN'T KNOW

Here are some reasons why you should not even need gloves when working on grinders and grinding machines.

Issue: "There are sharp edges or burrs that will cut me if I hold the part. The grinding will be to remove the burrs."

Response: Use a file to knock down the burrs so that you can safely hold the part for grinding, or use leather finger cots to grip the part.

Issue: "The part gets too hot to hold."

Response: Then you are grinding wrong. Here is a list of some of the things that can go wrong by letting the heat of grinding get out of control:

Remove the temper from steel. Especially on tools, loss of temper means loss of tool hardness and edge life. A drop from Rc63 to about Rc48 for a couple of tenths (0.0002-0.0005) can contribute to side wear and edge failure.

Crazing or checking on carbide can be caused by burning during grinding.

Work hardening. Overly shiny surfaces are usually the clue that work hardening has occurred.

Creation of untempered Martensite. Untempered Martensite can be formed in high carbon and alloy steels by getting high surface temperature from grinding (red heat), then quenching in water.

Further advice:

Untempered Martensite is very brittle and reduces toughness.

Keeping the work cool continuously while grinding is an important aspect of preventing damage to work, the wheel and injury from occurring to the worker.

Hogging off material and infrequently quenching is a great way to destroy a tool by grinding.

Water needs to be plentiful to absorb the heat from grinding and is frequently used to reduce heat buildup in the work.

Take multiple small passes and cool in between in a large bath of water while grinding to minimize heat buildup.

Wearing the required PPE, making sure the grinding wheel is properly dressed and that all guards are in place and properly adjusted are also key to safe grinding.

Bottom line:

If the work is too hot for your fingers, it may be approaching the danger zone regarding loss of mechanical properties and function in end use.

