

Hamilton-Senior lab-off-site learning packet day 3

Instructor Mark Hamilton

Date _____

Program/Class AEM Sr.

Period 5-8

State Indicator/Competency:

Unit 31: Grinding Machines

31.2 Explain the functions of grinding wheels and dressing devices

31.2.1 Identify different types of conventional grinding wheels and dressing devices.

31.2.2 Analyze the specifications for conventional grinding wheels.

Instructional Objective(s):

1: students will explain grinding cutting action with 80% accuracy

Materials:

Virtual machine shop

Method of Instruction:

Research

Activities:

Read through the hand out and answer the questions

Closure:

Answer the questions on the last page

Assessment:

Answer sheet will be collected and is worth 10 points

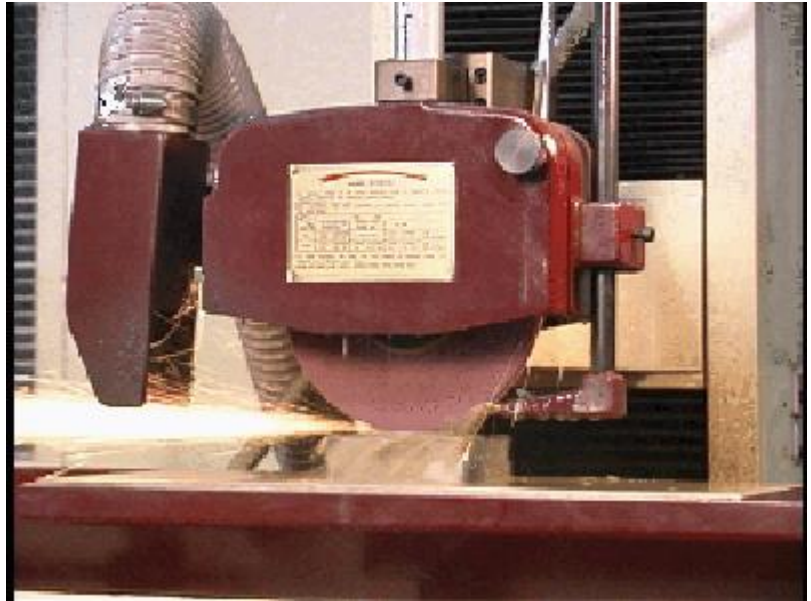
Grinding - 2: Cutting Action

To be successful with grinding, it is necessary to understand some basic principles. Grinding uses a method of material removal called abrasion. Rather than cutting like a lathe bit, the material is slowly worn away because the abrasive is harder than the material being ground. In truth the grinding wheel acts like many thousands of very small lathe bit, each cutting off some metal*.

The abrasive must also be strong enough to withstand the forces acting upon it while grinding. Usually some sort of impact shock occurs when the abrasive comes in contact with the material.

Heat while grinding is of major concern, with effects seen at every phase of the operation. Also the abrasive needs to be able to withstand high temperatures caused by the friction during the grinding. Sometimes, these high temperatures will cause damage to the bonding agents found in the wheel causing the wheel to break down. In general coolant must be directed at the grinding wheel, not the material being ground, as heat causes more damage to the wheel than the work piece..

Most abrasive wheels need to be able to be resurfaced (dressed), as the old surface will become impregnated with material during the grinding operation. Dressing is accomplished with a diamond tipped tool.



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1. What is the method of material removal with grinding called?
2. How does the grinding wheel remove material from the part?
3. What is one of the major concerns when grinding?
4. What affect can high temperatures have on the grinding wheel?
5. Why must a grinding wheel be dressed after a certain amount of grinding?