

## Belt/Disk Sander

This study guide will cover the major working parts, functions, and machining techniques that can be found/used on most **Belt Sanders**.

This study guide has been designed to directly represent the questions that will be found on the open book written assessment and as an aid for the hands-on usability assessment. Both assessments will also include questions related to standard machine shop safety and APS internal user safety guidelines.

Answering the questions found at the end of the study guide will enable the user to successfully pass the hands-on usability and open book written assessments. Study guide Practice test and answers can be found at the end of the guide.

**Belt Sanders** come in a variety of different designs and styles. Unlike the pedestal grinder, that has solid grinding wheels, the belt sander uses a flexible belt impregnated with a grinding medium.

**Belt sanders** have a basic function, the removal of small amounts of material. This material can be wood, metal or plastic.

The major advantage of a **belt sander** over the pedestal grinder is that soft metals such as; brass, aluminum, and copper may be ground on a belt sander with out causing ill effects to the sanding belt or disk.

### Sander Types

#### Disk Sander (Fig. 1)

This style of sander features a circular sanding disk, tilting table and a slot for a sliding miter gauge. This type of sander is very handy for removing burrs and grinding small angular surfaces.

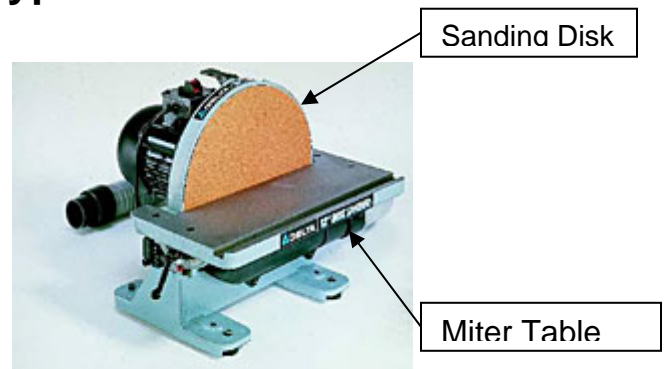


Fig. 1 Disk sander

## Vertical Belt Sander

There are two basic styles of **Vertical Belt Sanders**:

- Vertical Belt Sander without ventilation system (fig. 2)
- Vertical Belt Sander with ventilation system (fig. 3)

Both incorporate a continuous revolving belt of a wide variety of belt widths that spin on two vertically positioned drums, one stationary the other adjustable for belt tension.

Both types of vertical belt sanders are very handy for removing burrs and grinding small amounts of material from the edges of a part.

**Note:** Both belt sanders shown below (figures 2 & 3) are mounted on a pedestal type stand or they can be mounted on a table..



## Sander Safety

- Wear safety glasses or a face shield.
- Wear a dust respirator for dusty operations.
- Make sure the sander is switched "OFF" before connecting the power supply.
- Disconnect power supply before changing a sanding belt, disk, making adjustments, or emptying dust collector.
- Inspect sanding belts or disks before using them. Replace those that are worn or frayed.
- Install sanding belts that are the same widths as the pulley drum.
- Adjust sanding belt tension to keep the belt running true and at the same speed as pulley drum.
- Secure the sanding belt in the direction shown on the belt and the machine.
- Keep hands away from a sanding belt.
- Keep all cords clear of sanding area during use.
- Clean dust from a motor and vents at regular intervals.

### What should you avoid while working with belt senders?

- Do not use a sander without an exhaust system or a dust collector present that is in good working order. Empty the collector when 1/4 full. The dust created when sanding can be a fire and explosion hazard. Proper ventilation is essential.
- Do not exert excessive pressure on a moving sander belt. Only light pressure weight on the sander belt/disk is adequate for most jobs.
- Do not work on unsecured stock unless it is heavy enough to stay in place. Clamp the stock into place or use a "stop block" to prevent movement.
- Do not overreach. Always keep proper footing and balance.
- Do not cover the air vents of the sander.



## Practice Test

The following questions have been designed to directly represent the questions that will be found on the written assessment and as an aid for the hands-on usability assessment.

1. The type of sander is commonly called \_\_\_\_\_?

- A. Belt
- B. Table
- C. Angular
- D. Disk



2. Always disconnect power supply before changing a sanding belt, disk, making adjustments, or emptying dust collector.

True False

3. It is OK to cover the air vents of the sander.

True False

4. Only light pressure weight on the sander belt/disk is adequate for most jobs.

True False

5. A continuous sanding belt used on a belt sander can be mounted without regard to direction of spin of the drums.

True False

6. For best eye protection when grinding, always:

- A. Stand to the side of the sander while sanding
- B. Wear a face shield.
- C. Wear safety glasses with eye shields and wear goggles
- D. All of the above

- 7. The work piece should never be held in the hands while sanding.  
True      False
  
- 8. Use vises or clamps to hold work piece.  
True      False
  
- 9. It is not necessary to keep your hands at a safe distance from the moving sander belt/disk, the table will protect you.  
True      False
  
- 10. Always prop the machine shop door open upon entering shop.  
True      False
  
- 11. When hand grinding a very short part on a belt sander, the part should be:
  - A. Clamped to the tool rest
  - B. Held with vise grip pliers
  - C. Held with long nose pliers
  - D. Held by hand
  
- 12. Brass, aluminum, and other soft materials may be sanded on a belt/disk sander without causing harm to the belt/disk.  
True      False
  
- 13. Always clean up the work area before leaving the shop.  
True      False
  
- 14. Never wear jewelry or loose clothing while operating machine.  
True      False
  
- 15. Briefly describe why belt sanders are used in industry.  

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- 16. State the advantage of using a belt sander over a solid wheel pedestal grinder.  

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## Study Guide Answer Sheet

1. D
2. True
3. False
4. True
5. False
6. D
7. True
8. True
9. False
10. True
11. B
12. True
13. True
14. True
15. Interpret individually (refer to study guide)
16. Interpret individually (refer to study guide)