Safe Working Procedures and Instruction

100/115mm Disc Grinder

The risk of injury when using this machine is HIGH - Level 4 Risk

This Disc Grinding machine is used for a range of off-hand grinding procedures.

Uses of the Disc Grinding machine:
- a) Trimming irregularities from metal castings and forgings.
- b) Rough shaping of metals.
- c) Preparing joints in steel plate for welding.
- d) Smoothing metal surfaces.
- e) Cleaning up electric welds.

Identified Risks and Hazards

Hazards that may arise when operating portable electrical power equipment include:
- moving and rotating parts (blades and bits, tool disintegration)
- movement of the workpiece
- inhalation of fumes and dust particles
- electrocution from power faults, faulty equipment or incorrect use
- ejection of waste materials from cutting blades
- burns from hot materials or friction

General Safety Precautions

- Always obtain permission from the teacher before using the Disc grinder.
- Obtain training and instructions in the safe and proper use of the Disc grinder.
- Never operate Disc grinders in wet or damp conditions.
- Switch off and remove the plug from the power outlet before fitting attachments, changing grinding wheels, or making adjustments which require fingers or the hands to be near the wheel.
- Never connect a portable Disc grinder to a damaged power outlet.
- Check the following clothing for safety hazards and take appropriate action:
  - Fasten any loose clothing and tie apron cords or straps at the back
  - Remove any jacket or coat and any school uniform tie
  - Roll up shirt sleeves above the elbows or fasten them securely at the wrists
  - Do not wear finger rings, watches, bracelets or necklaces
  - Wear solid firm shoes which provide adequate protection for the feet
Wear appropriate Personal Protective Equipment such as safety glasses for eye protection.

Wear appropriate PPE such as dust mask if the operation produces airborne particles which could be a respiratory hazard.

Long hair must be contained with a suitable cap or net.

Hearing protection such as ear muffs must be worn as noise levels are identified as hazardous.

Make sure both hands are free to operate the Disc grinder as it is designed to be used with two hands.

Switch off the Disc grinder at the power outlet and remove the plug when it is not in use.

Never use a defective Disc grinder. Report it to the teacher.

Pre-Operational Safety

Before using the Disc grinder, examine the power cord, extension lead, plugs, sockets and power outlet for damage. Look for:

- cracked or damaged casing
- bare wires or loose connections
- damage to cord sheathing
- loose or missing screws

Before starting the Disc grinder ensure that the grinding wheel, guard and attachments are secure and correctly fitted.

Do not use damaged grinding wheels.

Always inspect the workpiece to ensure that there aren’t any items which might damage the grinding wheel or cause injury to the operator.

Secure and support the workpiece using clamps, bench vices or appropriate weights.

Operating Safety Precautions

Keep fingers and hands clear of the grinding wheel.

Always keep the power cord clear of moving parts and the grinding wheel.

Ensure that material being worked on is well supported or held securely where necessary.

Ensure that off-cuts cannot fall onto the feet of the operator.

Never make adjustments while the Disc grinder is running.

Do not switch off the Disc grinder when it is under load, except in an emergency.

Allow the Disc grinder to reach operating speed before using it on the workpiece. When the Disc grinder has reached the operating speed, apply the load gradually.

Avoid blocking or covering the motor ventilation slots while using the Disc grinder.

Do not strain power cords or extension leads, especially by lifting or dragging Disc grinders by the cords, or by pulling on the cord to remove the plug from the power outlet.
Do not walk on, wheel objects over, or drop materials or tools on flexible electrical cords.

Keep flexible electrical cords clear of oil, grease, machines and sources of heat.

Always position electrical cords with care to avoid trip hazards and to prevent damage to the cord or extension lead.

**Maintenance and Storage**

- On completion of the grinding procedure, clean down the Disc grinder and return it to its storage position.
- The grinding wheel should be fully protected when the Disc grinder is on the workbench or when being stored.
- Look for cracked or damaged casing, bare wires, loose connections, damage to cord sheathing, loose or missing screws, or blocked ventilation slots.
- Never use a defective Disc grinder. Report it to the teacher.

**Additional Operating Procedures and Precautions**

- Avoid overheating the work piece by not exerting too much pressure and prolonged contact with the abrasive wheel.
- Keep the grinding wheel moving sideways to keep an even surface on the work piece.
- Soft metals such as brass, copper, lead and aluminium should not be ground as they will only clog the wheel.
- Do not put excess pressure on the wheel, as it can cause the wheel to shatter.
- Make sure all other students keep clear of the immediate work area at all times.
- Use fibreglass reinforced wheels, especially when using depressed centre wheels.
- Check the wheel carefully for cracks or damage before grinding.
- Be careful not to damage the spindle, the flange or the lock nut.
- Before using the Disc grinder on the work piece, let the wheel run at speed for a while.
- Watch for vibration or wobbling as this would indicate poor wheel installation.
- Be aware of flying sparks. Hold the Disc grinder so that sparks fly away from you, other persons and flammable materials.
- Do not leave the Disc grinder running and only use the grinder when hand held.
- Do not touch the work piece immediately after the grinding operation as it may be extremely hot.