

Safe Use of a Portable Electric Drill (Corded or Cordless)

Standard Operating Procedure (SOP)

1. Purpose

To ensure the safe and effective use of portable electric drills while preventing injury, equipment damage, and electrical hazards.

2. Scope

Applies to all personnel using hand-held electric drills (corded or battery-powered) in workshops, construction sites, maintenance areas, or any location where drilling operations are performed.

3. Responsibilities

Operator: Must read, understand, and follow this SOP.

Supervisor: Ensure operators are trained and competent; verify PPE is worn and equipment is inspected.

4. Personal Protective Equipment (PPE) Required

1. Safety glasses or full-face shield
2. Hearing protection (if noise >85 dB)
3. Dust mask or respirator (when drilling materials that produce hazardous dust, e.g., concrete, treated wood)
4. Close-fitting clothing (no loose sleeves, jewelry, or long hair that can get caught)
5. Steel-toe boots
6. Work gloves (optional – remove when operating trigger to maintain feel)

5. Pre-Operation Checks

Inspect the drill:

1. Power cord / battery (no cuts, frays, or damage)
2. Chuck and key (tight, no cracks)
3. Trigger switch works properly (no sticking)
4. Ventilation slots are clear
5. Handles and guards are secure

Inspect the drill bit:

1. Correct type and size for material

2. Sharp and free of damage
3. Properly seated and tightened in chuck (use chuck key on all three holes)

Check work area:

1. Stable, uncluttered, well-lit
2. Secure workpiece (clamps or vise – never hold by hand)
3. Clear of flammable materials if sparks are possible

Verify voltage matches power source (corded drills).

6. Safe Operating Procedure

1. Put on all required PPE.
2. Secure the workpiece firmly.
3. Insert and tighten the correct drill bit.
4. Adjust speed and torque settings (if variable):
5. Lower speed for large bits or hard materials
6. Higher speed for small bits or wood

For corded drills:

1. Use a GFCI-protected outlet or extension cord rated for the drill's amperage.
2. Route cord away from work area to prevent tripping or cutting.
1. Hold the drill firmly with both hands (main handle + auxiliary handle if provided).
2. Position yourself balanced; never overreach.
3. Start the drill BEFORE contacting the workpiece.
4. Apply steady, moderate pressure – let the drill do the work (excessive force causes overheating and bit breakage).
5. Drill perpendicular to the surface unless angled hole is intentional.
6. When drilling deep holes:
7. Withdraw bit frequently to clear chips/dust ("peck drilling")
8. Use cutting oil or lubricant on metal when required

If the bit binds:

1. Release trigger immediately
2. Unplug or remove battery before clearing

Never leave a running drill unattended.

7. Shut-Down Procedure

1. Release trigger and let the chuck come to a complete stop.
2. Unplug the drill or remove battery.
3. Remove the bit and clean the drill (brush or compressed air – not while plugged in).

4. Store drill and bits in a dry, secure location.

8. Prohibited Actions

- Do not wear gloves when operating the trigger (reduces control).
- Do not use damaged cords or bits.
- Do not force the drill or use excessive pressure.
- Do not drill with one hand only (except very light-duty pistol drills).
- Do not disable or remove any guard or safety device.
- Do not use in wet conditions unless drill is specifically rated for it.

9. Emergency Procedures

In case of electric shock: Do not touch the person; unplug the drill first or turn off power at the breaker.

Bit breakage or kickback: Release trigger immediately and step back.

Report all incidents and near-misses to supervisor.

10. Maintenance & Inspection

Daily: Visual inspection before use.

Monthly: Clean vents, check cord insulation, lubricate chuck if required.

Tag and remove from service any damaged equipment.

11. Training Requirements

All operators must receive hands-on training and demonstrate competency before independent use.

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