



Power and Hand Tools Guideline

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1.0 Purpose

The purpose of the Power and Hand Tools Guideline is to support the safe use of power and hand tools at Cenovus worksites. This guideline outlines the minimum requirements, integrates Cenovus lessons learned, and provide best practices for the use of power and hand tools.

2.0 Scope

This guideline encompasses Cenovus work activities. Contract companies and service providers that use power or hand tools at Cenovus worksites must meet the requirements of the Contractor Health and Safety Program Requirements as it relates to the use of power and/ or hand tools.

The term *power tool* applies to any portable and/ or handheld tool powered by a separate energy source, such as battery or line powered electrical tools, pneumatic (compressed air) powered tools, hydraulic portable tools and powder actuated tools.

3.0 Minimum Requirements

The following are minimum requirements that must be followed. The remainder of the guideline is a summary of industry and manufacturers' best practices.

- Follow manufacturer's specifications or site-specific procedures when it supersedes manufacturer's specifications.
- Instruct workers in the potential hazard and safe use of the power and hand tools, prior to operating the tool.
- Complete a hazard assessment that takes into consideration hazardous environments.
- Only use tools for the purpose in which the tools were designed for.
- Non-engineered or manufactured wrench extensions (snipes & cheater bars) are banned from all Cenovus worksites.
- All knives listed in Table 1 are considered prohibited and not allowed on Cenovus sites.
- Actuated fastening tool triggers must not be held in the "ON" position unless designed so by the manufacturer.
- The RPM (revolutions per minute) of the grinder accessory is equal to or greater than the maximum speed of the grinder shaft in RPMs.
- When grinding an object with a hand-held grinder, the object cannot move.
- Hand-held grinder guards must cover at least 120 degrees arc of the accessory's circumference.
- Follow the minimum requirements for fixed grinder tool rest as stated in Fixed and handheld grinders
- Never adjust a tool rest while the grinder accessory is in motion.
- Ensure the chainsaw is designed or equipped with a mechanism that minimizes the risk of injury from a kickback when the saw is in use.
- Never adjust the chain of a chainsaw while the saw's motor is idling.

4.0 General Tool Requirements

4.1 Pre-use requirements

The following sections describe the minimum pre-use requirements.

4.1.1 Manufacturer's specifications

Operate, maintain, and discard all power and hand tools in accordance with manufacturer's specifications. Follow site-specific procedures when procedures supersede manufacturer's specifications.

Tools may only be used for the purposes for which they were designed for. Only use accessories designed for a specific tool as per the original equipment manufacturer (OEM) or a professional engineer.

4.1.2 Hazard assessments

Supervisors and workers shall ensure workers are instructed in the potential hazards and safe use of the power and hand tools, prior to operating the tool.

4.1.3 Personal protective equipment (PPE)

Use proper PPE when operating tools as per Cenovus' Personal Protective Equipment Practice.

4.1.4 Tool inspection

Inspect all tools at the beginning of the work day and periodically during the day, as dictated by work conditions and tool conditions.

4.1.5 Job evaluation

Always evaluate a job to be done in a hazardous environment. Use proper tools and equipment that eliminate ignition, such as electric motors that have been certified as explosion proof for use in the relevant hazardous work location, or non-sparking tools with proper use and maintenance.

4.2 General use requirements

- Operate all power and hand tools in a manner that removes the operator's body parts from the tool's line of fire.
- Power tools may only be operated by a competent individual.
- Attach or restrain tools when working at heights. Establish a control zone beneath the elevated work area.
- Practice good housekeeping by keeping cords/ hoses away from egress paths.
- Use the OEM supplied backing or reaction arm.
- Never use hand tools to back up hydraulic or pneumatic tools.

4.2.1 Defective tools

Remove defective tools from service. Tag the tools "DO NOT USE – Repair Required", and quarantine until a qualified person can repair or discard in a way that it cannot be reused.

4.2.2 Power supply

Use the original equipment manufacturer (OEM) recommended size, gauge and end connector type of extension cord for line power tools.

- Ensure corded electrical tools have a 3-wire (grounding) cord and plug, excluding double insulated tools.
- Ensure on/ off switches for power tools are functional and positioned in a manner that is easily accessible by the operator.
- Ensure ground fault circuit interrupters (GFCIs) are used and tested in the supply circuit to power tools used outside.

4.2.3 Maintenance, repairs and storage

- Maintenance records may be kept for all active power tools.
- Chisels, punches, hammers, screwdrivers, etc., should have tips properly dressed.
- Replace cracked and/ or splintered handles.
- Clean and repair tools prior to properly storing.
- Repairs to tools should be performed by qualified personnel, using OEM parts or equivalent.

5.0 Ergonomic Considerations

Prolong use of power and hand tools can increase the probability of illnesses and injuries such as Carpal Tunnel Syndrome and vibration white finger (VWF). When selecting and using power and hand tools, consider ergonomics.

5.1 General ergonomic considerations

- Hold the tool close to the body and do not overreach.
- Keep good balance and proper footing to better control the tool, especially in response to unexpected situations.
- Secure work with securing devices to free hands to operate the tool.
- Use the lowest setting possible to complete the task safely. This will reduce tool vibration at the source.
- Limit the use of power hand tools with vibration.
- Consider the use of anti-vibration gloves. However, do not wear thick or heavy gloves if operation of the tool requires precise movement.
- Keep areas well lighted when operating power and hand tools.

5.2 Grips

Consider whether the task requires a tool with a pistol grip or an in-line grip. When significant power or torque needs to be delivered, select the tool that allows for a power grip; the hand makes a fist with four fingers on one side and the thumb on the other.

The grip of a hand tool should be smooth, non-conductive, slightly compressible to dampen vibration, and better distribute hand pressure. Avoid tools that have grooves for fingers.

Tools that can be used in either hand allow workers to alternate hands, and the tool can be used properly by workers who are left-handed.

5.3 Handle size

The correctly sized handle allows the hand to go more than halfway around the handle without the thumb and fingers meeting. The recommended grip diameter, in most cases, is between 50 and 60 mm.

To provide good control of the tool and prevent pain/ pressure hot spots in the palm of the hand, a comfortable tool handle should be used. In general, tool handles should be at least 120 mm long. Consider the slippery nature of high polish/ glossy hand tools and mitigate the risk of losing grip of the tool.

5.4 Weight

A well-balanced tool with a properly designed grip or handle feels comfortable in the hand. To reduce hand, arm, and shoulder fatigue, the hand tool should not weigh more than 5 pounds. Heavy tools can be made easier to use by suspending or counterweighting them.

6.0 Specific Tool Requirements

6.1 Pneumatic tools

Ensure pneumatic tools are supplied from a utility source that does not power instrumentation. Never use fuel gas, natural gas, or nitrogen to power pneumatic tools.

6.2 Mechanical advantage tools

When tools are used to obtain a mechanical advantage necessary to safely make/ break a connection, the tools should meet the following requirements:

- Be in a condition that does not compromise the safety of workers using it.
- Safely perform the function it is intended or was designed for.
- Have adequate strength for its intended purpose.
- Be free from obvious defects.
- Be engineered for use as a mechanical advantage, compatible with the tool being used, and the same or lesser rated capacity.
- The use of a hydraulic wrench should be used for making/ breaking connections when box end wrenches cannot be used successfully.



Non-engineered/ manufactured wrench extensions (snipes & cheater bars) are banned from all Cenovus worksites.

6.3 Fixed and handheld grinders

The following additional requirements apply:

- Grinder discs, buffers and stones must be used only for designed application and at rated speeds.
- Fixed grinders must have properly adjusted tool rests, and stones are to be properly dressed.
- Abrasive wheels should not be operated at a speed that exceeds the manufacturer's specifications.
- Maximum speed of the fixed grinder in revolutions per minute (RPM) must be permanently affixed and visible.
- The mounting flanges for an abrasive wheel must have an equal and correct diameter for the wheel.
- Fixed grinders must have a tool rest installed that meets the following conditions:
 - installed in a manner that is compatible with the work process
 - attached securely to the fixed grinder
 - set not more than 3 millimetres (mm) from the face of the wheel
 - set at or above the horizontal centre line of the wheel
 - must not be adjusted while the grinder accessory is in motion
- The sides of an abrasive wheel must not be used for grinding, unless the abrasive wheel is specifically designed for that use.
- When changing the grinder accessory, the grinder must be isolated from any form of energy.
- Keep combustible materials out of the area of sparks from the grinding wheel.
- Angle grinders are to have original equipment manufacturer (OEM) guard.
- Operation of a hand-held grinder may be considered hot work; see Cenovus' Hot Work Standard for details.
- When grinding is required in or near a process plant, active rig, building, floor trench or wildland area, disconnecting and removing the work to a designated safe area with minimal combustibles should be considered.
- The maximum safe operating speed of the grinder accessory in RPM is equal to or greater than the maximum speed of the grinder shaft in RPM.
- The object being ground must be secured in a manner so that it is unable to unintentionally move.

An OEM guard is affixed to the handheld grinder and covers the area of the grinder accessory contained within an arc of at least 120° of the accessory's circumference.

!	<p>Sparks from grinders can travel more than 10 metres. Combustible materials, flammable vapours, and residues can be readily ignited by a grinder spark or hot metal.</p>
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6.4 Chainsaws

The following requirements apply for chainsaws:

- Chainsaws are equipped with an effective chain brake or a chain and bar that are designed to minimize the possibility of a kickback.
- The chainsaw is designed, constructed, and maintained so that the chain stops when the engine is at idle.
- Maintain the chainsaw, cutting chain, and safeguards in a safe operating condition.
- Do not adjust the chain of a chainsaw while the chainsaw's motor is idling.
- Stop the chain while walking with the chainsaw.
- Do not operate the chainsaw at a height that is higher than the worker's shoulder level.
- Hold the saw firmly in both hands.
- Where a chainsaw is to be used by a worker operating from an elevated cage or basket, the width of which is less than twice the length of the chainsaw, Cenovus workers shall ensure a secondary platform is installed outside the cage or basket and is used to store the chainsaw and to start the chainsaw engine.

6.5 Circular saws

The following requirements apply for circular saws:

- Discard circular saw blades that develop a crack from the eye or the collar.
- Discard circular saw blades that develop a crack in the outside diameter unless the following conditions are met:
 - A competent person repairs the blade.
 - the original blade tension is restored.
- Saw blades must be designed for the product being cut and at the rated speed.
- OEM guards must be in-place and functional.
- Portable hand-operated circular saws must be equipped with a safeguard that will automatically cover the exposed part of the blade during use and the entire blade when the saw is not in use.

6.6 Knives and other cutting tools

The following additional requirements apply for knives and other cutting tools:





- Store knives and cutting tools with the blades protected or retracted.
- Do not alter or remove any safety features of a knife. Discard tools with defective safety features immediately.
- Use a stable surface when cutting objects.
- Do not use any parts of the body as a surface when cutting objects.
- Choose the designed cutting tool for the specific task.

- Cut away from your body and keep all body parts out of the line of fire.
- Do not carry unguarded knives or cutting tools in your pocket.
- Do not throw knives or other cutting tools.
- Only use sharp blades. Dull or rusty blades require more force, and therefore are more likely to cause slip injuries.
- Use the minimum amount of exposed blade required to perform the task.

6.6.1 Prohibited cutting tools

The following types of cutting tools are prohibited:

Table 1: Prohibited Knives and Other Cutting Tools

Type	Snap-off bladed knives	Multi-tools	Pocket knives	Box cutter utility knife
Example				

* Pictures are for illustrative purposes only and are not meant to identify specific brands.

6.6.2 Approved cutting tools

The following types of cutting tools are approved:

Table 2: Approved Knives and Other Cutting Tools



Task	Tool Description	Required PPE
Cutting/Trimming: <ul style="list-style-type: none"> • Drywall • Cardboard • Rubber lining materials • Geotextile liners • Rope 	 <p>Auto retracting or "auto guarded" blade that retracts or is guarded automatically when it loses contact with material being cut</p>	Cut-resistant gloves
Cutting/Trimming: <ul style="list-style-type: none"> • Bubble wrap • Foam • Twine/string • Thin sheet materials • Cardboard or Film 	 <p>Concealed blade cutter</p>	Work gloves

* Pictures are for illustrative purposes only and are not meant to identify specific brands.

6.6.3 Trade-specific cutting tools

If trades require the use of specialized knives or cutting tools, they may utilize these specialized knives or cutting tools (if their workers are competent in the use of the tool), through their trade and utilize the tool in accordance with the manufacturer’s specifications. The following trade-specific tools may be approved:

Table 3: Trade-specific Knives and Other Cutting Tools

Task	Tool Description	Required PPE
E/I Trades <ul style="list-style-type: none"> Electrical cable stripping Insulation 	 Cable Stripping Knife with sheath - Trade Specific	<ul style="list-style-type: none"> Cut Resistant Gloves Sheathed when not in use
Insulators – Flooring Trades Workers <ul style="list-style-type: none"> Linoleum Pipeline Jacket 	 Banana Knife with Pouch	<ul style="list-style-type: none"> Cut Resistant Gloves Stored in pouch when not in use

* Pictures are for illustrative purposes only and are not meant to identify specific brands.

6.7 Wrenches and sockets

The following additional requirements apply:

- Use the correct type and size of wrench or socket/ drive for the job. Do not use pipe wrenches for tightening nuts and bolts.
- Metric tool for metric fastener and standard tool for standard fastener.
- The correct size wrench is preferred over adjustable, crescent, spanner, or thumb wrenches. These wrenches can damage the fasteners and are more prone to slip off than the proper wrench.
- Never place hands on hydraulic wrenches or their reaction arms while in operation.
- Use properly calibrated torque wrenches for tightening fasteners and fittings which have torque requirements. This aids in preventing both under-torqueing or over-torqueing, both of which may lead to significant hazards such as process leaks and equipment damage.
- Calibration sticker and certificate should be no longer than one (1) year old.
- Inspect the haws of pipe wrenches frequently and replace, when required, to ensure good grip on the workpiece.
- Maintain line of sight and voice communication on two-person bolting jobs.
- Never put hands or fingers into pinch points when using a wrench or socket/ driver.
- No double wrenching.

- Do not hammer on a wrench that is not designed for that application.
- When using an adjustable wrench, position the wrench so that the applied force does not spread the jaw apart.

!	Combination wrenches are preferred over adjustable wrenches.
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- Adjust body position and footing to prevent a fall should the wrench slip on the workpiece or fail.
- If tightening fasteners on equipment under process pressure and/ or temperature, workers should follow COMS 4.5 Operating and Maintenance Procedures Standard.

6.8 Powder-actuated tools

The following additional requirements apply:

- Do not utilize powder-actuated tools in electrically classified areas.
- The trigger of an actuated fastening tool must not be operated unless the worker is in control of the tool and is holding the trigger in the ON position.
- Do not secure the trigger of an actuated fastening tool, by mechanical means, in the ON position unless the manufacturer’s specifications allow the tool to be used in that way.
- Follow local provincial legislation regarding powder-actuated tools.

6.9 Non-sparking tools

Non-sparking tools offer a form of spark mitigation in classified areas but have less tensile strength than steel hand tools and may be dressed frequently. For non-sparking tools to perform as intended, consider implementation of the following:

- Tools are kept clean and free from ferrous or other contaminants, which may hamper the non-sparking properties.
- Do not use non-sparking hand tools in direct contact with acetylene, which may form explosive acetylides, especially in the presence of moisture.
- Use local or mechanical ventilation systems, as appropriate, to remove hazardous materials, dusts and vapors from the workplace.

It is important to assess each situation carefully and use the appropriate tools for the hazards that are present. In some cases, non-sparking tools may still be able to produce a spark.

!	If work is being conducted where flames and sparks are present, ensure the atmosphere is proven safe. See Hot Work Standard and Portable Gas Detection Practice for more information.
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6.10 Electrically powered tools in classified areas

Zone 2 classified areas include those areas where explosive atmospheres may exist for short periods. Process buildings at Cenovus are typically classified as Class 1, Zone 2 (Class 1, Division 2 under legacy electrical codes). Electrically powered tools not approved for Zone 2 classified areas, present an ignition source that may result in fire and/ or explosion. When considering the use of electrically powered tools in classified areas, always ensure the following:

- Refer to the facilities hazardous area classification drawing or the hazardous area classification maps prior to commencing work. These maps are located at the facilities Safe Work Team’s office and/or can be obtained through a Cenovus representative.
- Prior to commencing work in a classified area, verify that all electrical equipment, including all tools, are approved for the hazardous location.
- Consider using hand tools or non-electrical tools in hazardous areas.

!	<i>The Canadian Electrical Code, Rule 2-024, requires that all electrical equipment be of a kind or type and rating approved for the specific purpose. Alberta Municipal Affairs has issued Electrical STANDATA (330-LEG-ECR-2[rev 25]) that details acceptable equipment approvals in Alberta.</i>
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!	During maintenance, turnaround, tank cleaning, and other non-routine operations, areas of the plant or equipment interiors may contain flammable vapours and may have insufficient ventilation to dilute the flammable vapours to below the lower explosive limit. Ensure the atmosphere has been proven safe. See Hot Work Standard and Confined Space Entry Standard.
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7.0 Training

All personnel involved in supervising or performing work, related to Power and Hand Tools Guidelines, will have received training related to;

- Occupational Health and Safety regulations governing power and hand tools.
- The minimum requirements stated within this guideline.
- All functional and site-specific rules, procedures, and plans associated with power and hand tools.
- Any relevant service provider’s safe work procedures meant to control the hazards associate to power and hand tools.

7.1 Operating and maintenance procedures

It is the accountability of Functional Leaders to ensure that workers, under their supervision, have been trained in the appropriate policies, standards, processes, and procedures. This accountability is defined within 4.5 Operating and Maintenance Procedures COMS Standard.

8.0 References

8.1 Definitions and acronyms

The following terms, definitions and acronyms are specific to this guideline:

Table 4: Terms and Definitions

Term	Definition
Non-sparking tool	Non-sparking, spark reducing, spark-resistant or spark-proof tools are commonly used names to describe tools made of metals such as brass, bronze, copper-nickel alloy, copper aluminum alloys, or copper-beryllium alloys
Power tool	Any portable and/ or handheld tool powered by a separate energy source, such as battery or line powered electrical tools, pneumatic (compressed air) powered tools, hydraulic portable tools and powder actuated tools

Table 5: Acronyms, Initialisms and Abbreviations

Acronym	In Full
GFCI	ground fault circuit interrupters
OEM	Original equipment manufacturer
PPE	Personal Protective Equipment
RPE	Revolutions per minute
VWF	Vibration white finger

8.2 Related Information

The following references support this standard:

- [Alberta OHS Code](#) – Part 25 Tools, Equipment and Machinery
- Alberta: Electrical STANDATA (330-LEG-ECR-2[rev 25])
- [Canadian Centre for Occupational Health and Safety \(CCOHS\)](#)
 - [Hand Tools](#)
 - [Hand Tools Ergonomics](#)
 - [Powered Hand Tools](#)
- COMS Standards
 - 3.1 Risk Management COMS Standard
 - 4.5 Operating and Maintenance Procedures COMS Standard
 - 5.4 Training and Competency Assurance COMS Standard
 - 7.2 Assurance COMS Standard
- HSER Document and Management of change (MOC) Process
- HSER Programs & documentation
 - Confined Space Entry Standard
 - Contractor Health & Safety Program Requirements
 - Hot Work Standard
 - Personal Protective Equipment Practice
 - Portable Gas Detection Practice
- WorkSafe BC