

Power Tool Safety Terms

Abrasive Wheel (including diamond wheels) – A rotating accessory designed to grind, cut, or remove stock from various materials such as metal or concrete. There are three types of wheels that are most frequently encountered:

Type 1A Wheel (ISO 41) – A disc shaped wheel intended for cutting by the periphery of the wheel.

Type 11 Wheel – A cup shaped wheel intended for grinding by the face of the wheel.

Type 27 Wheel – A saucer/center depressed shaped wheel intended for grinding by its periphery or the face of the wheel.

Amperage (Amps/Rated Amperage) – A measure of the flow of electric current. If you think in terms of water through a hose, amperage would be a measure of water volume flowing through the hose. As it applies to electric power tools, “Rated Amperage” is how many amps the tool uses when tested under a specified condition. Rated amperage is useful in choosing the correct extension cord gauge and length (refer to the tool’s instruction manual).

Anti-Kickback Device – A device incorporated into some power tools intended to minimize the effects of kickback (see Kickback)

Anti-Kickback Pawl – A device with teeth intended to permit motion in one only direction, and helps minimize the effect of kickback. (See “Anti-Kickback Device”.)

Blade Guard – See Guard

Chip Shield – An attachment to tools designed to contain wood or metal chips, and sawdust, and help keep them away from the operator.

Clamp – A restraining device used to hold a workpiece in place while you work on it.

Cutter Guard – See Guard.

Double-Insulated (DI) – a form of electrical protection featuring two separate insulation systems to help protect against electrical shock from internal malfunctions. DI tools have no provision for grounding (no third grounding prong), and are equipped with a polarized two-prong plug (See “Polarized Plug”). Double-insulated tools will be marked with a “double square” (), or the words “Double-Insulated” on the tool’s rating plate.

Ear Protection – Devices such as ear muffs or ear plugs that reduce the intensity of the noise entering your ear. Ear protection will carry a NIOSH Noise Reduction Rating, or “NRR”, which indicates how much the noise level you experience is reduced (in decibels), when the device is properly used.

Extension Cord – An electric cord used between power tools and outlets to extend the range of the tools. The more amperage your tool uses, and the longer the distance, the larger the size of the wire needed in your extension cord (larger wire = smaller gauge).

Eye Protection – Goggles or spectacles intended to protect your eyes. Eye protection should meet the requirements of ANSI Z87.1 (USA) or CSA Z94.3-M88 (Canada) – these products will be marked with “Z87.1” or “Z94.3”. Note: a face shield is not “eye protection” unless used with goggles or spectacles.

Face Shield – An impact-resistant shield that helps to protect your face from chips, sparks, small debris, or wire wheel bristles. Face shields should be used only in conjunction with spectacles or goggles.

Featherboard – A multiple fingers-like aid, used to firmly hold your workpiece against the fence or table while you’re feeding the workpiece through the tool. A device used whenever your hands would otherwise need to pass near the blade or cutter. (See Push Block/Push Stick)

Power Tool Safety Terms (continued)

Fence – A device that helps locate and/or guide your workpiece during the cutting process.

Goggles (Safety Goggles) – See “Eye Protection”.

Ground Fault Circuit Interrupter (GFCI) – A safety device designed to sense electrical leakage to ground and quickly shut off the circuit to prevent electric shock.

Grounded Outlets (Receptacles) – An electrical outlet in a typical 120V application is equipped with two vertical slots and a third rounded hole (the “ground”). Use of an adapter with a grounded outlet eliminates the grounding protection.

Guard – Protective device that forms a barrier between a hazardous object such as blade, wheel or a cutter and the operator.

Hearing Protection – See "Ear Protection."

Hold-down – Device used to help hold the workpiece down to the support surface during the work. (See, e.g., “Clamp” or “Featherboard”.)

Horsepower (HP) – a measure of power – that is the amount of work done in a given time. In terms of electric power, one HP = 746 Watts. Horsepower of power tools is typically stated in the following ways:

Motor-only Horsepower – a horsepower measurement performed at the output of the motor only without reduction thru gears or belts.

Tool Horsepower – a horsepower measurement performed at the “work end” of the tool, in other words, the point where the accessory performing the work is attached, i.e. the blade on the spindle or the drill bit in the chuck.

Continuous Horsepower – the maximum output that can be produced continuously without exceeding the rated current. A motor’s Continuous Horsepower is usually lower than its Peak Horsepower. It is sometimes referred to as “Continuous Duty Horsepower”.

Peak Horsepower – the maximum output that can be developed in actual use.

Impact Energy – represents the amount of work that can be performed by a single blow of the hammering mechanism. It is usually measured in foot-pounds (or inch-pounds) of energy.

Instruction Manual (Manual, Owner's/Operator's Manual, Use & Care Guide) – The booklet accompanying your power tool that describes the hazards and safe operating procedures, outlines basic tool operation, care, and maintenance.

Kickback – Sudden and unintended movement of the tool or workpiece. It is typically caused by binding or pinching of the workpiece.

Listed – As in "UL Listed" means the product has been tested for conformance to the applicable national standards. Listed products can be identified by a “mark” on the tool’s rating plate (e.g., a “UL”, “ETL”, or “CSA” mark or symbol).

Motor – There are several types of electric motors typically used in power tools:

AC Motor – An electric motor that operates on “alternating current” – the kind of power source found in a household outlet.

DC Motor – an electric motor that operates on “direct current”.

Induction Motor – an AC motor which has no brushes, and is typically larger, heavier, slower, and used in benchtop and stationary equipment, such as table saws, planers, band saws and jointers.

Permanent Magnet Motor – a DC motor that is commonly used in battery tools.

Power Tool Safety Terms (continued)

NRTL – Nationally Recognized Testing Laboratory – The OSHA Program recognizes private sector organizations as NRTL's, and recognition signifies that an organization has met the necessary qualifications specified in the regulations for the Program. Examples of laboratories which are listed with OSHA as NRTL's include CSA, ETL and UL.

Overreaching – Extending your body with a tool or a workpiece in hand such that a loss of balance is likely. For example: reaching over the blade or cutter area; or reaching from scaffolding to drive a screw

Polarized Plug – type of plug which has one prong larger than the other so it can only be inserted into an outlet in one way.

Power Source – A household workplace electrical outlet, battery or generator providing the electricity for your tool. The power source must be compatible with the requirements found on the tool's rating plate; voltage, amperage, AC or DC, frequency.

Power Switch – A control device that energizes your tool in the “on” position and de-energizes the tool in the “off” position.

Push-block/Push Stick – A suitably shaped and designed hand-held device used to push the workpiece into and past cutting edges on stationary power tools.

Respiratory Protection – A device placed on your face used to filter the air you breathe. Available in a variety of styles (such as disposable dust masks, half-face respirators, and full-face respirators), respiratory protection devices are typically provided with a NIOSH approval rating (e.g., “N95”).

Revolutions Per Minute (RPM) – for a tool that rotates an accessory (e.g., a drill, saw, router...), RPM is the number of complete turns the accessory makes in one minute.

Safety Glasses (Spectacles) - See “Eye Protection”.

Speed

Maximum Speed – the highest speed at which a product (i.e. tools, accessories, attachments) can be safely operated.

No-Load Speed – Speed measured when the tool is operating at the rated voltage but not engaged in work. It is usually listed on the tool rating plate.

Rated Speed – Speed measured when the tool is operating at the rated voltage and loaded to work at the rated load current.

Torque – A twisting action tending to cause rotation typically measured in foot-pounds or inch-pounds.

Vise – See "Clamp".

Voltage – The electric potential difference measured between two conductors such as the “hot” and “neutral” for AC power supply or the potential difference between the + and the – poles of the DC supply. If you think in terms of water through a hose, voltage would be the water pressure. So the higher the voltage, the more “pressure” is pushing the electricity.

Wattage (W) – a measure of power, that is the amount of work done in a given time. If you think in terms of water through a hose, wattage is a measure of how much pressure is required to push the volume of water delivered in a period of time. Note: For A.C. electric tools, the wattage is more complicated than simply amps times volts.