

GLOSSARY

abrasive cut-off saw	A cutting-off machine used to cut material by means of a thin, abrasive wheel revolving at high speed.
accident	Something going wrong unexpectedly such as falling on a slippery floor.
accountability	An obligation or willingness to accept responsibility to somebody or for something.
accuracy	The ability to be precise and avoid errors.
adjust	To bring the components of a part into a more effective or efficient calibration or state.
air gauging	A technology that employs the use of air flow volumes and air pressure to determine the size of measured part dimensions.
amplifier	The readout of an air gauge system. It contains the necessary restrictions to change the pneumatic pressure or flow and then displays readings on a scale as dimensional values.
angle	The space between two lines diverging from a common point and expressed in numerical form.
angle of keenness	The the included angle produced by grinding side rake and side clearance on a toolbit.
assembly	The process of joining together two or more parts to complete a unit or structure.
back rake angle	The backward slope of the tool face away from the nose.
balance	The resultant non-movement on the display of an air amplifier that occurs when one nozzle of a two nozzle tool is closed toward the workpiece and the other nozzle equally compensates for that movement.
base	The bottom surface of the tool shank.
bench vise	A device for holding small work securely for sawing, chipping, filing, polishing, drilling, reaming, and tapping operations.
bevel protractor	An instrument in the form of a half circle used for measuring and making angles other than a 90 ^o angle.
blade tension handle	The part of the horizontal band saw used to adjust the tension on the saw blade.
blueprint	A generic term for the representation of the work piece to be machined. It can be a pencil sketch or a CAD drawing or any of a number of other graphic options used to represent the design.
brightness	The intensity of light reflected or emitted by something.

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broaching	A process in which a special tapered multi-toothed cutter is forced through an opening or along the outside of a piece of work to enlarge or change the shape of the hole or to form the outside to a desired shape.
built-up edge	A layer of compressed metal from the material being cut which adheres to and piles up on the face of the cutting tool edge during a machining operation.
burnishing	A process that develops a smooth finish on a metal by tumbling or rubbing with a polished hand tool.
careless	Not giving sufficient attention or thought to avoiding harm or mistakes.
center head	A part of the combination square set that is used to find the center of or to bisect a round or square workpiece.
chip-tool interface	That portion of the face of a cutting tool on which the chip slides as it is cut from the metal.
CMM	A Coordinate Measuring Machine. It is a mechanical system designed to move a measuring probe to determine coordinates of points on a work piece surface.
cold circular cutoff saw	A cutting-off machine used to cut soft or unhardened metals.
column	An air-electronic amplifier or a flow system amplifier featuring a vertical bar graph display or flowmeter tube.
combination set	A set of tools used extensively in layout work. It consists of a steel rule, square head, bevel protractor, and center head,
crystal elongation	The distortion of the crystal structure of the work material that occurs during a machining operation.
CTS	Refers to air tooling designed to measure "close to shoulder."
cutting edge	The leading edge of the toolbit that does the cutting.
cutting tools	Any tools used to cut material. This usually refers to milling cutters, lathe bits, or drills.
damage	Loss or harm resulting from injury to person, or property.
datum	A reference point from which movements or measurements are made. A datum can lie anywhere on the surface of a work piece.
deformed zone	The area in which the work material is deformed during cutting.
density	The mass per unit volume of a substance, usually expressed in grams per cubic centimeter or in pounds per cubic foot.
depth micrometer	An instrument used to measure the depth of slots, steps, and other features.

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die	A tool to make threads on the outside diameter of shafts. It is also used to form and blank sheet metal parts.
dismantling	Taking apart, disassembling or tearing down.
dividers	Instruments used for scribing arcs and circles on a layout and for transferring measurements.
divisor	A number divided into another number. For example, 7 is a divisor of 42 because $42/7 = 6$.
drill	A tool used to make holes in firm material.
electropolishing	A process that involves passage of electric current through a workpiece, while it is submerged in a specially-designed acid solution.
end cutting edge angle	The angle formed by the end cutting edge and a line at right angles to the centerline of the toolbit.
end relief angle	The angle ground below the nose of the toolbit which permits the cutting tool to be fed into the work.
face	The surface against which the chip bears as it is separated from the work.
feed	The motion of moving the work piece and the cutting tool together so as to remove material.
file	A hand cutting tool made of high-carbon steel. It has a series of teeth cut on its body by parallel chisel cuts.
file card	A wire brush mounted on a block of wood to clean the file.
finish	Refers to the surface appearance of steel after final treatment.
finished product	The goods or services produced and completed by a company.
fitting	A mechanical device used to attach two pieces of tubing/piping together or to attach a piece of tubing/pipe to a component.
fixture	A production work-holding device used for machining duplicate workpieces.
flank	The surface of the tool adjacent to and below the cutting edge.
flowmeter tube	A graduated glass tube of a precise size with a "floating" cork that displays the reading on a flow air gauge system.
fraction	A number that is not a whole number, e.g. $1/2$ simple fraction or 0.5 decimal fraction, formed by dividing one quantity into another.

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frame	A part of the horizontal band saw, hinged at the motor end, which has two pulley wheels mounted on it, over which the continuous blade passes.
friction sawing	A burning process by which a saw band, with or without saw teeth, is run at high speeds to burn or melt its way through the metal.
full scale value (FSV)	The numeric equivalent of the graduated display. It is usually 1 ½ to 2 times greater than the tolerance being measured to show approach or oversize conditions.
gauge	Any one of a large variety of devices for measuring or checking the dimensions of objects.
grooming	To care for one's appearance such as wearing approved safety clothes.
hammer	A hand tool consisting of a shaft with a metal head at right angles to it, used mainly for driving in nails and beating metal.
hand hacksaw	A tool consisting of a frame and a saw blade generally used for cutting metal into pieces.
hand reamer	A tool used to finish drilled holes accurately and provide a good finish.
hazard	A danger or harm.
height gauge	An instrument used to scribe accurately dimensioned lines on a workpiece which has been prepared by brushing it with layout dye.
hermaphrodite caliper	A tool for marking lines parallel to square edges and shoulders on a workpiece.
honoring	The process of removing stock generally on the internal cylindrical surface of a workpiece with an abrasive stick mounted in a holder.
horizontal band saw	A cutting-off machine that has a flexible, belt-like "one-way" blade that cuts continuously in one direction.
housekeeping	Management and maintenance of the property and equipment of the shop.
impedance	A measure of resistance to electrical current flow when a voltage is moved across something, such as a resistor.
installing	Putting machinery or equipment into place and making it ready for use.
ISO	The abbreviation for the International Organization for Standardization.
injury	Damage or harm.

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jig	The part of a metalworking machine that holds the object to be worked on and guides the cutting or drilling tool.
keyway	A mechanical locking device located on the slitter head spindle shaft that holds the knives and spacers in place.
lapping	An abrading process used to remove minute amounts of metal from a surface that must be flat, accurate to size, and smooth.
lathe	A turning machine capable of producing round diameters by rotating a work piece against a stationary single-point cutting tool.
layout	The process of measuring and marking a workpiece with finely scribed lines that guide you during the cutting process.
layout die	A fast-drying colored liquid, usually a very deep blue, that is brushed onto a workpiece to prepare it for laying out guide lines.
lobe	A rounded projection that is part of a larger structure.
machine tool	An apparatus consisting of inter-related parts with separate functions, used to remove material from a work piece. Examples are milling machines, lathes, drill presses, surface grinders, and hundreds more.
machining	To cut, shape, or finish a piece of work using a power-driven tool such as a lathe or drilling device.
magnification	The visual increase of size that is created by an air amplifier.
mating part	Either one of a pair of things that belong together.
measuring instruments	Devices used to determine physical size of parts to verify compliance to requirements.
micrometer	A precision measuring instrument, used by machinists. Each revolution of the ratchet moves the spindle face 0.5mm towards the anvil face.
milling machine	Used to produce flat and angular surfaces, grooves, contours, gears, racks, sprockets, and helical grooves.
mold	A hollow form for giving a particular shape to something in a molten or plastic state.
multiplier	The number by which another number multiplicand is multiplied, e.g. the number 4 is the multiplier in the statement $2 \times 4 = 8$
nose	The tip of the cutting tool formed by the junction of the cutting edge and the front face.
nose radius	The radius to which the nose is ground.
nozzle	The orifice in the air gauge tooling that emits the air that blows against the part being measured.

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parallel	Two lines or surfaces extending in the same direction, everywhere equidistant, and not meeting.
plastic deformation	The change in shape of the work material that occurs in the shear zone during a cutting action.
plastic flow	The flow of metal that occurs on the shear plane, which extends from the cutting-tool edge to the corner between the chip and the work surface.
pliers	A hand tool with two hinged arms ending in jaws that are closed by hand pressure to grip something.
point	The the end of the tool that has been ground for cutting purposes.
power hacksaw	A cutting-off machine utilized to cut material of various shapes and sizes up to six inches across.
prevention	Taking advance measures against something possible or probable such as measures taken to <i>prevent</i> leaks.
prick punch	Instrument used to permanently mark the location of layout lines.
protect	To keep from injury.
punch press	A power driven machine used to cut, draw, or otherwise shape material, especially metal sheets, with dies, under pressure or by heavy blows.
reaming	A machining process using a reamer to smooth and accurately size a previously cored, drilled, or bored hole.
reference	A surface of known flatness or a point from which other lines and locations can be measured.
rigging	Gates, risers, loose pieces, etc., needed on the pattern to produce a sound casting.
roller guide brackets	A part of the horizontal band saw that provide rigidity for a section of the blade and can be adjusted to accommodate various widths of material.
route sheet	A document that describes the order of processing for the part(s) being manufactured (machined).
rupture	The tear that occurs when brittle materials, such as cast iron, are cut and the chip breaks away from the work surface.
safety	The condition of being free from danger, injury, or damage.
scraper	A hand tool used to move something hard, sharp, or rough across a surface, especially in order to clean it.
screwdriver	A hand tool for fastening screws.
scriber	A sharp instrument used to mark and lay out a pattern of work to be

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	followed in subsequent machining operations.
setup	Refers to line preparation to cut new width size for customer specification.
shank	The body of the toolbit or the part held in the tool holder.
shear angle	The angle of the area of the material where plastic deformation occurs.
shear zone	The area where plastic deformation of the metal occurs.
side cutting edge angle	The angle the cutting edge forms with the side of the tool shank.
side rake angle	The angle at which the face is ground away from the cutting edge.
side relief angle	The angle ground on the flank of the tool below the cutting edge.
squares	Instruments used to lay out lines at right angles to a machined edge to test the accuracy of surfaces that must be square, and to set up work for machining.
square head	Device used to check 45° and 90° angles and measure depths.
standard	The level of quality or excellence that is accepted as the norm or by which actual attainments are judged.
steel rule	A scale used for measuring and layout.
step pulleys	A part of the horizontal band saw used to vary the speed of the continuous blade to fit the type of material cut.
stock	The material being machined. It can be any material and any shape. In the machine shop it usually refers to round or flat pieces of metal ready to be machined.
surface gauge	A tool for scribing layout lines on a workpiece, or for transferring measurements from a rule to a workpiece.
surface plate	Provides a precision reference surface for layout, checking, machining and gauging work.
taps	Cutting tools used to cut internal threads.
tolerance	A range by which a product's gauge can deviate from those ordered and still meet the order's requirements.
trammel	Instrument used to scribe large arcs and circles.
tumbling	A production process that is used for cleaning, polishing, and removing sharp corners and burrs from metal parts.
Vernier caliper	Precision tools used to make accurate measurements to within .001 in. or 0.02 mm.

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wrench

A hand tool with fixed or movable jaws, used to seize, turn, or twist objects such as nuts and bolts.