

Kushed Procedures

Metal Cold Saw

M3

Pedrazzoli Super Brown
Special - 300mm dia.





The Shed provides items such as welding masks and gloves.

Members are required to provide their own footwear, eyewear, hearing protection and masks.

Safety

This is a very high priority for our Shed members. There are some aspects that are mandatory under our insurance policies and some which the The Shed requires members to adhere to for everyone's benefit.

The Shed Safety Induction

It is a requirement of attendance at The Shed that members have reviewed the Safety Induction Presentation

Personal Protective Equipment

This is required in various forms depending upon the equipment being used or the activity being undertaken.

Protective eyewear is always mandatory when using machinery.

The Shed schedules a Coordinator and a First Aid Safety Officer for each day of attendance and their safety directions are final and must be adhered to.



Key Features of the Metal Cold Saw

This three phase machine has a circular steel toothed cutting blade which rotates relatively slowly but with considerable torque. The blade is cooled with a cutting fluid which is pumped up from a sump under the body of the machine. The sump fluid requires topping up when low or replacement when contaminated.

The work is must be very firmly held during cutting by use of the integral machine vice or very secure clamps. The machine has a length stop which can be set when cutting multiple pieces of the same length. There is a quick clamp lever, which once set to give correct clamping pressure, can be used when making multiple cuts of a single sized material.

The motor together with the head of the machine can swivel horizontally and vertically. **Rotation of the head about the horizontal axis is complex and should only be done with assistance from a Coordinator who has experience in this task and when multiple cuts warrant this being done.**



Speed Control

The saw has two speeds of rotation controlled by the start switch. Higher speeds are used for non-ferrous and softer metals such as aluminium, brass and plastics. The slower speed is used when cutting harder materials such as mild steel. **This machine should not be used to cut stainless steel.**

The machine can be used to cut other materials such as plastics and can cut various sectioned material including round, tube, square, hexagon, flat bar and rolled or extruded sections. Material less than 3 mm thick should not be cut vertically as the teeth on the blade have a greater pitch than this and may be stripped or blunted during the cut. Wide flat material can be cut with a specially fitted larger toothed blade if cut on the flat and a broad cutting surface is being cut.

Cutting waste produced (swarf) is similar to filings and requires clearing off the machine and vice surfaces. A magnet in a plastic bag has been placed near the sump return drain for the cutting fluid at the back right side of the machine. This helps collect ferrous cuttings but requires regular cleaning to prevent the drain clogging and maintain magnetic efficiency.



Safety & Procedural Issues

Safety

- Keep hands away from blade and heavy pivoting sections of the machine
- Wear eye protection. Thoroughly irrigate eyes with fresh clean water if coolant splashes into them
- If skin is irritable from exposure to oils and cutting fluids, use preventative protection such as barrier cream or close fitting neoprene gloves
- Ensure work being cut is handled carefully especially if long and likely to cause injury to others or inadvertently hit surrounding objects or people. Barriers may be required to warn of overhang hazards
- Cut ends of work can have sharp edges or burrs which can cause injury if not careful
- Always ensure work pieces are very securely clamped and any long lengths supported during cuts
- Ensure the work area and floor is clear of off-cuts, tools and cutting fluid



Safety

Are you wearing approved safety glasses and face shield?

Do you, and others around you, have appropriate hearing protection?

If you have long or loose hair, is it tied back and contained?

Are you wearing a dust apron or overalls?

Have you removed all your exposed rings and jewellery?

Before making a cut

If in doubt about the operation you are about to do, seek a Coordinator's assistance.

- Do not attempt to cut thin sections. Wall thickness should be no less than 1.6mm for square or round tube and material should be at least 3mm thick if cutting its edge.
- Check that the floor area, machine and coolant drain are clear of off cuts, tools and swarf material. Clean up if necessary
- Seek the padlock key from a qualified Coordinator and unlock the switch. Place the lock in a safe but obvious position ready for locking the switch after cutting is complete.
- Check that the blade looks in good condition by lowering it when the machine is off both at the wall outlet and on the machine. Look at the exposed teeth after the safety guard retracts sufficiently.
- Adjust and/or check the angle of the cut and adjust machine to suit desired angle



Warning

Keep rags well clear of the blade. Immediately clean up any coolant which drips or splashes onto the floor as it becomes a slip hazard because of its oiliness.

Coolant contaminated rags should not be stored in bins but should be dried out if they cannot be disposed of immediately. They create a spontaneous combustion fire risk.

Before making a cut

- Ensure the surface onto which the work is to rest is clean and the work sits firmly on it when clamped. Set up the machine's roller and additional supports for longer work. The work should usually sit on surface at the bottom of the vice. It is essential to ensure good support under and behind the metal being cut and additional thick metal backing or vice jaw adjustment may be required for this. Make sure machine vice jaws are not in the line of cut. Ensure the work piece is very securely held otherwise the teeth or/ or blade may break.
- With the machine turned off, lower the blade to see that it lines up with the desired cut location. Adjust appropriately.
- With the blade in the raised position, test the coolant flow by starting the machine and ensuring a steady coolant flow onto the blade occurs. If it does not start flowing the priming bulb in the coolant line may require several squeezes to start the flow or the tap regulating the flow may require adjusting.
- Place "stops" on longer work to prevent coolant running along and dripping on the floor. Rags, magnets or small metal offcuts can be sat on bar to act as drip directors.



After machine use

Remove the work and clean the machine such that it is ready to use by the next operator.

Replace the switch padlock and any supports and length stops in their correct storage positions.

Return any barriers or roller stands to storage positions

Making a cut

Use switch either to 1 (Low speed) or 2 (High speed) position to turn the machine on to the appropriate speed. Lower the blade steadily into the work to make the cut. Never start the machine with the teeth already in contact with the work or in an existing cut. The saw should be run slower for harder materials such as mild steel. The faster speed can be used for softer materials such as brass, aluminium and copper.

Ensure steady coolant flow to wash away cuttings and keep the work and blade cool so that blade life is prolonged and prevents galling (built up of cut waste material sticking on blade) especially with stainless steel, copper and aluminium.

Listen to the sound of the machine which indicates correct cutting action and avoid vibration during cut as this may damage the blade. Maintain pressure on the cut until completed. Beware of offcuts which can inadvertently fall.

Turn the machine off before removing the work and setting it up for any additional cuts