Sure Cut Tool Box Kit pictured with no regulator. Also available in a Standard Kit with no rods in a small carrying case.

**PHOTO**
Fire / Rescue personnel using Sure Cut to cut steel beams in a collapsed structure.

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## SURE CUT FEATURES

No Carbon Residue - Clean cuts with no carbon to grind away.
Portable - It can be used in remote areas with the use of a 12 volt battery.
Faster - Sure Cut is as much as five times faster than oxy-acetylene cutting and up to ten times faster than Carbon Arch Gouging depending on the Thickness of material to be cut.
Easy to Use - With Sure Cut equipment, all you need is an ignition source (Welder, 12 or 24 volt battery or tourch) and oxygen to operate.

## REQUIRED EQUIPMENT

Sure Cut System (comes complete with hose and welding leads)
Sure Cut Rods (sold separately)
Oxygen Regulator (sold as optional equipment)
Oxygen Cylinder (not supplied by Oxylance)
Ignition Equipment (Welder, 12 or 24 volt battery or Oxy-Acetylene tourch)

## PROCEDURE

1. Connect oxygen to oxygen cylinder
2. Connect oxygen hose to regulator
3. Attach electrical cable to power supply. (Straight or Reverse Polarity)
4. Insert rod into Sure Cut rod holder
5. Adjust oxygen pressure to 50 to 80 psi (depending on thickness to cut)
6. Squeeze trigger on holder to check for oxygen leaks and to purge rod
7. Attach striker plate cable to power source
8. Contact striker plate with tip of Sure Cut rod and squeeze oxygen control trigger on holder to ignite rod

| ROD DIAMETERS | ROD LENGTH | OXYGEN FLOW |
|---|---|---|
| 3/16" (0.187" O.D,) | 18" & 36" | 2 to 4 cfm |
| 1/4" (.250 O.D.) | 24", 36" & 48" | 3 to 5 cfm |
| 3/8" (.375" O.D.) | 24", 36" & 48" | 5 to 8 cfm |

3/8" Rods available in Plain End and Quick Connect

## APPLICATIONS

**PAPER MILLS:**
Remove boiler tubes, precipitators and general maintenance
Remove frozen journals from rools and piercing frozen pins

**Metal Fabrication:**
Pierce starter holes in thick plate for shape cutting machines
Gouge heavey weldments

**Railroad:**
Removal of derailed cars in remote locations
Repair rail cars and track repair and maintenance

**Construction:**
Repair highway guardrails
Scrap Removal and light demolition
Removal of rivets and bolts
Cutting rebar in concrete

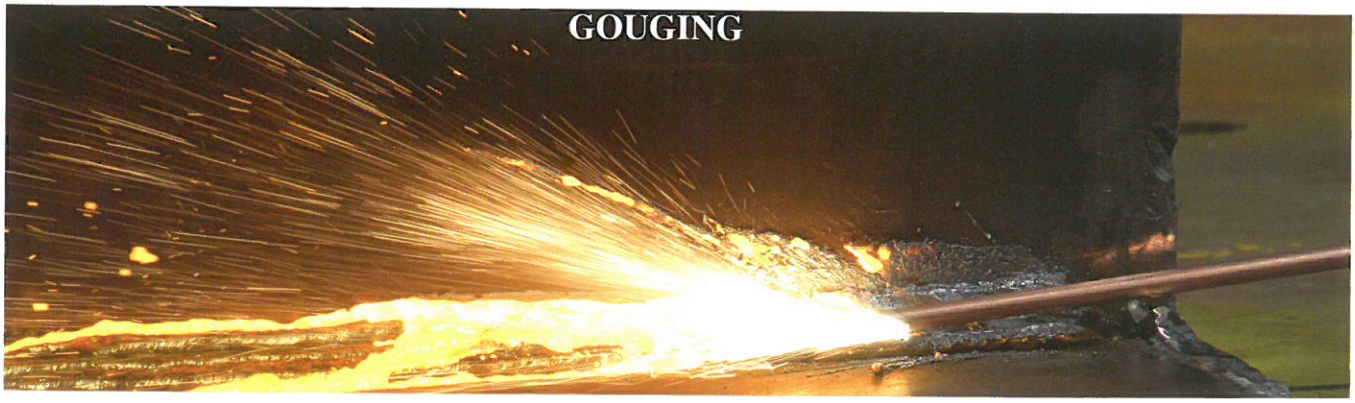
**Demolition:**
Removal of metal structures
Cut steel out of concrete
Gouge heavy steel to facilitate controlled explosion demolition

**Power Plants:**
Remove old boilers and boiler tubes
Demolition of precipitators

**Foundries:**
Remove risers, gates and fins from castings
Cut up spills for re-melt and furnace clean up

**Scrap Yards:**
Cut up cast iron parts
Cut all types of scrap including stainless and many non ferrous metals

**Fire / Police / Military**
Breaching operations
Rescue from collapsed structures



## BURNING BAR PERFORMANCE

A 10'6" Burning Bar is consumed in 4 to 4.5 minutes no matter which diameter is being used. The difference in cutting ability is based on the volume of oxygen that can flow through the burning bar. The following charts are examples of oxygen consumption and cutting ability of various diameters of burning bars.

| Size BB | CFM | CFH |
|---|---|---|
| .540" od | 15-20 | 900-1200 |
| .625" od | 25-30 | 1500-1800 |
| .675" od | 30-40 | 1800-2400 |
| .840" od | 45-55 | 2700-3300 |
| .922" od | 60-70 | 3600-4200 |
| 1.05" od | 70-80 | 4200-4800 |

Flow rates are based on pressure setting of 90 to 150 psi

**CAPABILITIES**

.540" od cutting plate up to 3/8" thick and for piercing pins 2 to 4" in diameter.
.625" od cutting plate up to 3/4" thick and for piercing pins 3 to 6" in diameter.
.675" od cutting plate up to 6" thick and for piercing pins 5 inches and larger.
.840" od cutting plate up to 10" thick and can be used for piercing pins 10" od and larger.
.922" od cutting plate up to 18" thick and solid shafts up to 30 inches
1.05" od cutting plate, shafts, counter weights over 30".
Cutting applications will vary according to the material being cut. Some materials will require a larger diameter burning bar than mild steel.

### CUTTING TIMES AND WORK STUDIES

**STAINLESS STEEL**

- Cut 4 feet of 6" Thick 304 Stainless Steel with one .675" X 10'6" burning bar
- 4' diameter SS heat exchanger consisting of 1/2" od SS tubes spaced 1/4" apart. Cut in half with one .675" X 10'6" burning bar.

**MILD STEEL**

- 5/8" plate embedded in concrete required one each .675" X 10'6" burning bar to cut 10 feet.
- 1" Mild Steel (clean steel) plate in flat position, one .675" X 10'6" burning bar to cut 20 feet.
- 30" Steel Shaft required five 1.05" X 10'6" burning bars
- 10 feet of high strength steel injection molding machine head 26 inches thick required twenty five 1.05" X 10'6" burning bars.
- 7" thick cast steam turbine housing. One .922" X 10'6" burning bar cut 30 inches.
- 26" Steel Shaft sixteen each .625" X 10'6" burning bars. Same cut was duplicated with .922" X 10'6" and was cut with 5 burning bars
- 44" Steel Shaft required nine each 1.05" X 10'6" burning bars

**ALUMINUM**

- Cutting 1.5" thick aluminum plate, one .675" X 10'6" burning bar cut 15 feet in 4 minutes.
- Aluminum spill, .840" X 10'6" burning bar cut 1.5 feet of 12 inch thick aluminum and aluminum slag

**PIERCING FROZEN PINS AND PLATE**

- Removing 6" X 16" pin from paper mill roll required one .675" X 10'6" burning bar
- Removing 6" X 24" hinge pin from tunnel boring machine required four .675" X 10'6" burning bars. Pin was wedged and had to be split in two directions to remove.
- Piercing five starter holes in 10" plate required one 10'6" burning bar.

For piercing starter holes in plate for shape cutting machines, the diameter of the burning bar will determine the diameter of the completed hole. To produce holes smaller than 1/2 inch, the Sure Cut System may be the proper choice. Typical hole diameters will be 1/4" to 3/8" larger than the diameter of the burning bar. Hole diameter will depend on operator technique. A pierce through 10 inch thick plate should take 35 to 45 seconds

**CAST IRON AND NON FERROUS METALS**

Cutting efficiency on cast iron depends on the grade, carbon content and hardness. Many cast irons will cut as easily as mild steel or cast steel. Others like rolls in paper mills may not cut at all. We have cut cast iron frames on presses that cut faster than mild steel. One such cut was on a cast beam in a newspaper printing press. The web was 14 inches tall and the flanges were 10 inches wide with an average thickness of 4 inches. The beam was severed in half with one .922" X 10'6" burning bar in 4 minutes. The best method of testing cast iron is to use an oxy-acetylene torch and see if the material will melt. If it will melt, a burning bar will cut it. If it will not melt, a test cut will have to be made with a burning bar to determine if the material will cut efficiently.

**COPPER, BRASS, BRONZE AND ALUMINUM BRONZE**

All of these metals act as heat syncs. The thicker the material, the more heat it takes to reach a point where it will melt. Thin material like the copper tubes in a heat exchanger will cut rapidly whereas the fins on ship propellers, made from aluminum bronze, will require larger burning bars and larger quantities of oxygen. Again, these types of materials will require the operator to make a test cut to determine if burning bars will produce the desired results.

**CONCRETE**

Concrete is another material that will not oxidize, so cutting it is a melting process. The speed of cutting concrete will depend on three things:

- Type and size of aggregate. Concrete with a lot of aggregate will cut very slow.
- Amount of rebar. The more steel that is in the concrete the faster it will cut.
- Tensile strength and moisture. As concrete ages, it becomes harder. The harder the concrete the slower it will cut. The more moisture in the concrete the better it will cut as the moisture will turn to steam and expand causing the concrete to spall or crack faster.

**For recommendations on which of our products would be best suited for your project contact our technical services department (205) 322-9906 ext 222.**