# GOUGING TORCHES

## FEATURES & BENEFITS

**IMPROVED TORCH AIR FLOW**
- More efficient use of air supply
- Improved metal removal

**FOUR HOLE HEAD ASSEMBLY**
- Optimizes air flow to the arc
- Efficiently cleans slag from groove edge

**AIR ASSIST POSITIVE AIR SHUT-OFF**
- Minimizes air supply unit cycling on and off
- Allows torch usage when air supply is marginal

**IMPROVED CABLE ELECTRICAL CONDUCTION**
- Improves cable service life
- Decreases heat build up in cable and torch

**SUPERIOR OUTER CABLE COVER**
- Durable cover for improved cable life in a harsh environment
- Resists breakdown due to exposure to heat produced by gouging

**INSULATED CONNECTION BOOT & HOOK-UP KIT**
- Makes for easy torch hook-up
- Virtually eliminates the possibility of arcing when contacting electrically hot parts

Angle-Arc®
Gouging Torches

Straight Handle
Gouging Torches

Tri-Arc®
Gouging Torches

# IMPROVED CARBON-ARC TORCH CABLE BOOT DESIGN

## FEATURES & BENEFITS

- **Patented two-piece boot design**
  Molded from a hard nylon reinforced fiber polymer made to withstand the substantial abuse in shop and field applications
- **Helps prevent accidental arcing**
  No chance of the "boot" pulling away from the power connection as seen with prior "boot" design
- **Ease of replacement in the field**
  Threaded screws holds the two halves together and can be loosened with a standard straight blade screwdriver
- **Available in two (2) different molded "boot" housing configurations**

  **Conventional Boot (Part No. 94-105-032)**
  – Accepts one 4/0 welding cable from the power supply and one 3/4" (19 mm) diameter air hose assembly providing current and compressed air

  **Quick-Connect Hook-Up Kit (Part No. 94-463-046)**
  – Twist lock-style power connection and air hose extending from the rear of the torch cable. This option allows the operator to connect or disconnect the incoming power lead and air line quickly and easily

Patent No. D708,240 S

**THE "BEST" JUST GOT BETTER**

**Help prevent accidental arcing in your workplace**

**Conventional**
Replacement Part No. 94-105-032

**Quick-Connect Hook-Up Kit**
Replacement Part No. 94-463-046

**NOTE**: Replacement Boots will fit onto all Arcair manual hand torch cable assemblies having an amperage range of 1000 Amps or less.

# GOUGING TECHNIQUES FOR SPECIFIC MATERIALS

### CARBON STEEL & LOW ALLOY STEEL, SUCH AS ASTM A514 & A517
Use DC electrodes with DCEP (electrode positive). AC electrodes with an AC transformer can be used, but for this application, AC is only half as efficient as DC.

### STAINLESS STEEL
Use DC electrodes with DCEP (electrode positive). AC electrodes with an AC transformer can be used, but for this application, AC is only half as efficient as DC.

### CAST IRON INCLUDING MALLEABLE AND DUCTILE IRON (NODULAR)
Use 1/2" (12.7 mm) or larger diameter CCDC electrodes at the highest rated amperage. Use an angle of 70° off the workpiece and the depth of gouge should not exceed 1/2" (12.7 mm) per pass.

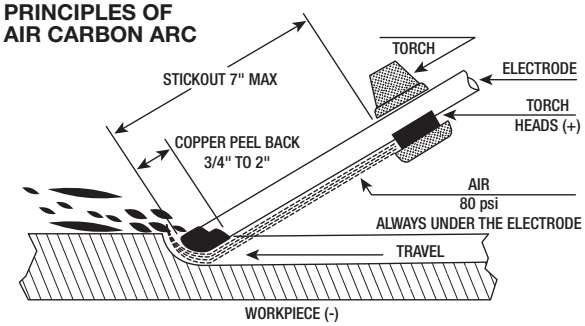
### COPPER ALLOYS (COPPER CONTENT 60% AND UNDER)
Use CCDC electrodes with DCEN (electrode negative) at the electrode's highest amperage rating.

### ALUMINUM BRONZE AND ALUMINUM NICKEL BRONZE (NAVAL PROPELLER ALLOY)
Use CCDC electrodes with DCEN (electrode negative) at the electrode's highest amperage rating.

### NICKEL ALLOYS (NICKEL CONTENT OVER 80% OF MASS)
Use CCAC electrodes with AC current.

### NICKEL ALLOYS (NICKEL CONTENT UNDER 80% OF MASS)
Use CCDC electrodes with DCEP (electrode positive) at the electrode's highest amperage rating.

### PRINCIPLES OF AIR CARBON ARC




### MAGNESIUM ALLOYS
Use CCDC electrodes with DCEP (electrode positive) and prior to welding, wire brush the groove.

### ALUMINUM
Use CCDC electrodes with DCEP (electrode positive). You must brush with a stainless wire brush before welding. Electrode stick-out (length of electrode between torch and workpiece) should not exceed 3" (76.2 mm).

### TITANIUM, ZIRCONIUM, HAFNIUM, AND THEIR ALLOYS
Do not cut or gouge to prepare for welding or remelting unless you mechanically remove the surface layer from the cut/gouge surface.

NOTE – If you preheat for welding, preheat for gouging

## CURRENT REQUIREMENTS

| Electrode Diameter | 1/8" 3.2 mm | 5/32" 4.0 mm | 3/16" 4.8 mm | 1/4" 6.4 mm | 5/16" 7.9 mm | 3/8" 9.5 mm | 1/2" 13 mm | 5/8" 16 mm | 3/4" 19 mm | 1" 25 mm | 3/8" Flat 9.5 mm Flat | 5/8" Flat 16 mm Flat |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Minimum amps DC | 60 | 90 | 200 | 300 | 350 | 450 | 800 | 1000 | 1250 | 1600 | 250 | 300 |
| Maximum amps DC | 90 | 150 | 250 | 400 | 450 | 600 | 1000 | 1250 | 1600 | 2200 | 450 | 500 |
| Minimum amps AC | – | – | 200 | 300 | – | 350 | – | – | – | – | – | – |
| Maximum amps AC | – | – | 250 | 400 | – | 450 | – | – | – | – | – | – |

## GOUGING TORCH SELECTION GUIDE

| Copperclad Electrodes | Amperage Range: 90 – 450 | 450 - 1000 | 1000 -1400 | 1400 – 2000 | 2000 - 2400 | Recommended | Alternate |
|---|---|---|---|---|---|---|---|
| 1/8" - 3/8" Round (3.2 mm - 9.5 mm) 3/8" & 5/8" Flats (9.5 mm & 15.9 mm) | ■ | | | | | K3000™ | |
| 5/32" – 1/2" Round (4.0 mm – 12.7 mm) 3/8" & 5/8" Flats (9.5 mm & 15.9 mm) | ■ | ■ | | | | K4000® | K3000™ |
| 5/16" - 5/8" Round (7.9 mm - 15.9 mm) | | ■ | ■ | | | K-5 | K4000®, Tri-Arc® |
| 5/16" – 1" Round (7.9 mm – 25.4 mm) | | ■ | ■ | ■ | ■ | Tri-Arc® | |

## WHICH TORCH IS RIGHT FOR YOU?

| Torch Model | Amperage (Maximum) | Swivel Cable | Swivel Cable Lengths (Ft) | Air-Cooled Water-Cooled | Handle Design | Body/ Upper Arm Construction | Application | Special Features |
|---|---|---|---|---|---|---|---|---|
| K3000™ | 600 | 360° | 7 ft & 10 ft | Air-Cooled | Small & Ergonomic | Brass | Medium Duty | All brass torch parts with a copper head assembly having 4-hole design |
| K4000® | 1000 | 360° | 7 ft & 10 ft | Air-Cooled | Small & Ergonomic | Brass | Heavy Duty | All brass torch parts with a copper head assembly having 4-hole design |
| K-5 | 1250 | 340° | 7 ft & 10 ft | Air-Cooled | Straight | Brass | Heavy Duty | All brass torch parts with a copper head assembly having 4-hole design |
| Tri-Arc® | 2200 | 340° | 7 ft & 10 ft | Air-Cooled & Water-Cooled | Straight | Copper | Heavy Duty | Versatility with three (3) different head assemblies to choose from to meet any metal removal application |



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