

Dated: October 21, 1987

Revised: November 17, 2000

## INTRODUCTION

**Eureka No. 1215 Electrodes** were designed for the repair of the "A" series of air hardening grades of tool steel. More specifically, its chemistry is comparable to an A.I.S.I. A-2 steel. This alloy is generally used when a complete anneal and rehardening of an A-2 steel will be encountered. This allows the deposit to be softened, machined, and then rehardened without any cracking difficulties. The electrodes display a smooth driving arc with minimal spatter. Slag removal is excellent along with restrike characteristics.

## METALLURGICAL CHARACTERISTICS

**Eureka No. 1215 Electrodes** contain approximately 5 percent Chromium and are carefully balanced with additional alloys to insure uniform hardness and moderate to good wear resistance. The "**all weld metal**" deposits of **Eureka No. 1215** will average 58 - 62 Rockwell "C" as welded and can be tempered lower than necessary.

## RECOMMENDED APPLICATIONS

**Eureka No. 1215 Electrodes** are recommended for welding the A-2 grade of air hardening. Typical applications encountered are trim steels, piercing punches, flange, and forming dies as well as some draw form operations. This alloy is most widely used for general repair of the air hardening grades where a complete heat treat cycle will be used.

## PREPARATION AND WELDING PROCEDURE

1. Impressions or surfaces to be welded must be free of scale, dirt, or any other foreign matter.
2. All cracks and heat checks must be removed entirely. This can be accomplished by grinding or machining and or air carbon arc gouging.  
**Note: If air carbon arc gouging is to be utilized. Then preheating prior to gouging will be necessary.** In stock removal, allow at least three layers

## **PREPARATION AND WELDING PROCEDURE**

(continued)

- (3/8") of weld metal to guard against dilution or admixture with the base metal.
3. Select a preheat temperature according to the base metal (heat for one hour per inch maximum cross sectional thickness at temperature.)
  4. Select D.C. reverse polarity.
  5. Select the proper diameter electrode according to job size or repair area.
  6. Select the lowest amperage needed to effectively weld so as not to overheat or disturb the base.
  7. Utilize short 3" – 4" stringer beads – peening thoroughly after each pass to offset shrinkage and welding stress in the crater of the weld.
  8. Control interpass temperature as close as possible to preheat temperature.
  9. After welding, **post heat** at the same temperature used to preheat to equalize thermal gradients.
  10. After post heating, slow cool the die by covering it with heat resistant blankets (Kaowool, Cerawool) to 150°F. minimum.
  11. Return the die or component to the furnace for tempering. Temper the die or component according to the temper chart of the welding alloy for desired hardness.
  12. Remove from furnace and slow cool (**same as Step 8**).
  13. Double temper (**highly recommended**).

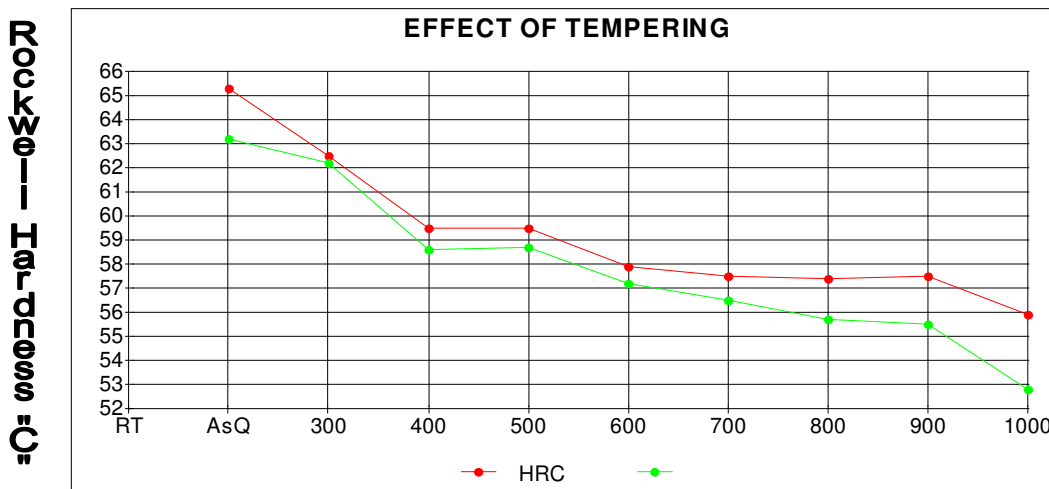
## HEAT TREATMENT AND TEMPERING INFORMATION

Temperature For:

Forging	2000°F. -- 2100°F.
Annealing	1550°F.
Hardening (air)	1700°F. -- 1775°F.
Tempering	300°F. -- 1000°F.

## HEAT TREATMENT AND TEMPERING INFORMATION

(Continued)



Air Cooled  
Top Line -- 1775 ° F.  
Bottom Line -- 1725 ° F.

## AVAILABILITY

Eureka No. 1215 Electrode is available in the following sizes:  
3/32"; 1/8"; 5/32"; and 3/16".