Eureka Welding Alloys
2000 E. Avis Drive
Madison Heights, MI 48071

ISO 9001
Certified

Product: Eureka No. 60 Ni Electrode

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INTRODUCTION

It is impractical, if not impossible, to establish absolute, positive welding procedures for any cast iron, and its alloys in the same sense that you can when welding tool steels, mild steels, and so on. The reason for this is that when welding the cast alloys, we are often dealing with serious cracks, unusual configurations, and many times scale and dirt; plus possible impregnation of oil or drawing compound, that might be the case, when welding on drawing or forming units. In view of this, the information printed here should be considered as a general guide.

METALLURGICAL CHARACTERISTICS

Eureka No. 60 Ni Electrode is a Nickel-Iron electrode designed to produce high strength, porous free, non-cracking welds on cast iron, such as Malleable, Ductile Iron, Meehanite, and Ni-Resist. Weld deposits of **Eureka No. 60 Ni** are readily machinable, and may be used to both **join and overlay** the above listed iron materials.

RECOMMENDED APPLICATIONS

Eureka No. 60 Ni Electrode can be used on just about every conceivable application in the maintenance repair welding of cast iron units such as gears, sprockets, motor housings, machine bases, cams, levers, draw dies, and so on.

PREPARATION AND WELDING PROCEDURE

1. Impressions or surfaces to be welded must be free of scale, dirt, or any other foreign matter.

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PREPARATION AND WELDING PROCEDURE

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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 (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. Nickel electrodes will not respond to tempering. This step is to remove stresses and reduce the hardness of the Heat Affected Zone (HAZ).

12. Remove from furnace and slow cool (same as Step 8).

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PREPARATION AND WELDING PROCEDURE

(continued)

13. Double temper (highly recommended).

PREHEAT AND POST HEAT

- Preheat all alloyed "cast units" between 800 ◦ F. and 900 ◦ F.

- Post heating is desirable for all cast iron, where practical; to reduce hard spots and eliminate hard heat affected zones.

- Post heating and tempering is beneficial for all grades of cast iron as. Wrapping the welded unit in a Kaowool blanket after tempering to allow to cool slowly is highly advantageous.

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