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APPLICATIONS

For the repair of S.A.E. 4140 or similar grades of wrought or cast steels, especially when heat treatment is required after welding. Not recommended for use as a joining filler metal.

OPERATING CHARACTERISTICS

Eureka No. 140 Electrodes are formulated with a rutile type coating to deliver a smooth stable arc, along with a self-detaching slag. Slow burn off rates and high fluidity of deposits enable controlled deposition amounts for delicate repairs.

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 (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.

PREPARATION AND WELDING PROCEDURE

(continued)

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**).

AC--DCSP--DCRP--PREFERRED

in	3/32"	1/8"	5/32"	3/16"
mm	2.5	3.25	4.0	5.0
amp	80 – 100	100 – 130	130 – 160	160 – 190

TYPICAL CHEMICAL COMPOSITION % WT

C:	.40
Mn:	.50
Si:	.55
P:	.015
S:	.015
Cr:	1.0
Mo:	.20

HARDNESS VALUES OF PURE WELD METAL AS WELDED

44 - 49 HRC Machinable

Can be flame hardened to 55 HRC

Special Note: Preheat temperature for S.A.E. 4100 series steel should be 600 ° F. - 700 ° F.