

# *Eureka Welding Alloys*

2000 E. Avis Drive

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## TECHNICAL DATA FOR EUREKA 650 ROBOWELD METAL CORED WIRE

**Dated:** January 27, 2015

### INTRODUCTION

**Eureka RoboWeld 650 Metal Cored Wire** was specifically developed for robotic welding of forging dies of most any designs. The RoboWeld wires when used with the **NEWELD** robotic process do not require peening of weld metal due to lower welding stresses. This is accomplished through a combination of five factors;

- 1) High quality wires utilizing the very best raw materials available.
- 2) The programmed pulse arc welding energy has lower penetration, dilution, and heat input.
- 3) The programmed robot maintains precise torch angles, stick out length and travel speeds.
- 4) Programed arc start up and arc ending amperages and voltages are ramped up and down.
- 5) Only a few layers of weld metal are required to achieve nearly pure weld metal.

The RoboWeld 650 produces a modified martensitic stainless steel deposit. The wire has a smooth spray transfer arc with nearly no slag to contend with. The wire is formulated to develop high quality weld deposits that are free of defects. The wire is designed for multi-pass welding which greatly increases productivity.

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## METALLURGICAL CHARACTERISTICS

**Eureka RoboWeld 650 Metal Cored Wire** develop a modified martensitic stainless steel that has an as welded hardness of 50-55 HRC. This alloy has good hot hardness and is resistant to heat checking. The high chromium content promotes good resistance to oxidation at elevated temperatures.

## RECOMMENDED APPLICATIONS

**Eureka RoboWeld 650 Metal Cored Wire** is used for the welding of medium to shallow hammer dies and most any type of press dies. It is often used in connecting rods, crankshafts and yokes. It is good for intricate impressions that require high strength and good wear resistance. It is often used as an overlay on top of Eureka 450.

## WELDING PARAMETERS

TYPE	SIZE	AMPERAGE	VOLTS
<b>Metal Cored Wire</b>	<b>1/16" 1.6mm</b>	<b>180 – 350</b>	<b>24 – 31</b>

**Use DC Current with a Stick Out of  
1/2"-3/4" (12mm-19mm)**

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## **RECOMMENDED SHIELDING GASES**

**90% Argon, 10% Co2**

**92% Argon, 8% Co2**

## **GAS FLOW RATE**

**1/16" 1.6mm 40-80 CFH**

## **TYPICAL CHEMISTRY**

<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>Cr</b>	<b>Mo</b>	<b>Ni</b>	<b>W</b>	<b>V</b>
<b>.30</b>	<b>.80</b>	<b>.40</b>	<b>9.0</b>	<b>2.0</b>	<b>2.0</b>	<b>.40</b>	<b>.30</b>

## **PHYSICAL AND OR MECHANICAL PROPERTIES**

**TENSILE STRENGTH 213,000 psi**

**YIELD STRENGTH 176,000 psi**

**CHARPY "V" NOTCH 13 Ft/lbs.**

## **AS WELDED HARDNESS**

**50-55 HRC**

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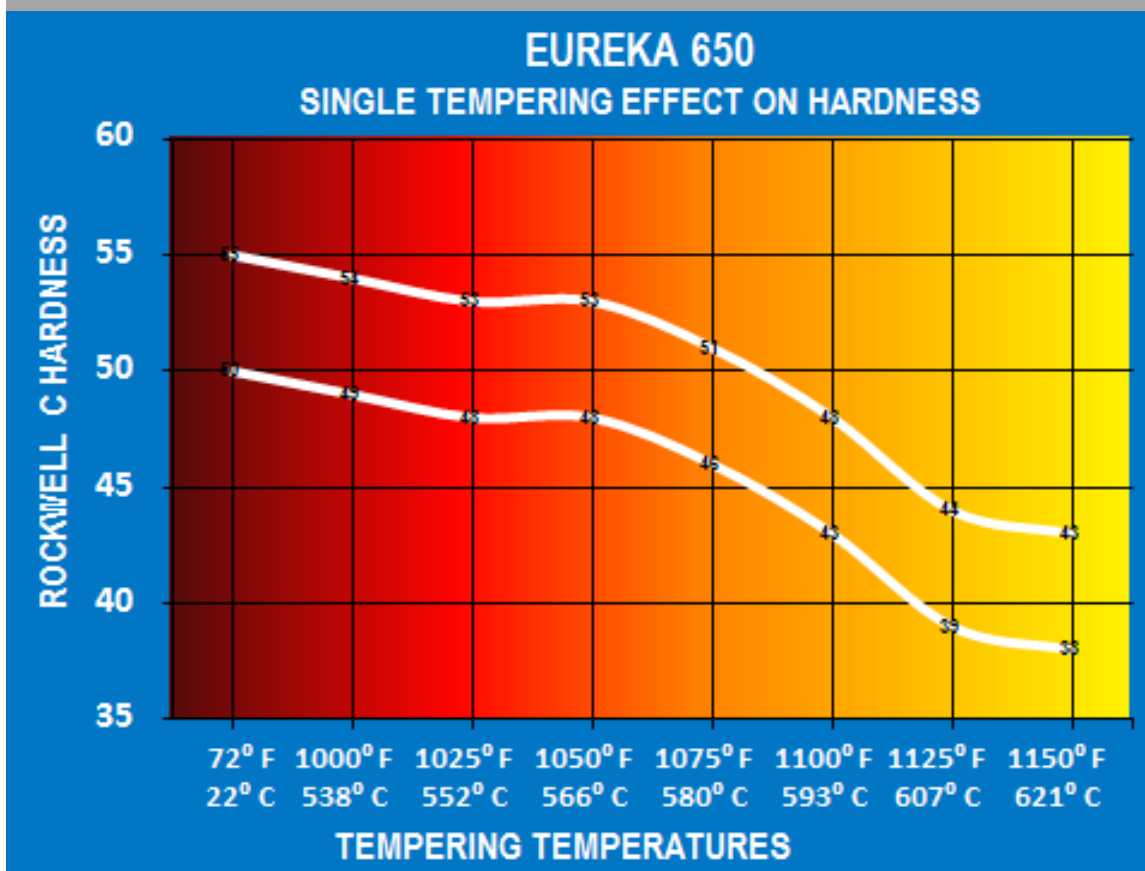
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## TEMPERING DATA

The tempering data is to be used as a guide. Your results may differ due to the many variables in the utilization of this product.



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