

Eureka Welding Alloys

2000 E. Avis Drive

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TECHNICAL DATA FOR EUREKA 653 ROBOWELD METAL CORED WIRE

Dated: Aug 3, 2020

INTRODUCTION

Eureka RoboWeld 653 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 programed pulse arc welding energy has lower penetration, dilution, and heat input.
- 3) The programed 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 653 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 653 Metal Cored Wire is a modified martensitic stainless steel that has an as welded hardness of 50-55 HRC. The **653** has a 2 % cobalt addition as compared to the standard 650 alloy. This promotes greater hot hardness and better wear resistance. Its ability to resist heat checking is better than Eureka 72 alloy. The high chromium content promotes good resistance to oxidation at elevated temperatures.

RECOMMENDED APPLICATIONS

Eureka RoboWeld 653 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
Metal Cored Wire	1/16" 1.6mm	180 – 350	24 – 31

**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

C	Mn	Si	Cr	Mo	Ni	W	V	Co
.30	.80	.40	9.0	2.0	2.0	.40	.30	2.0

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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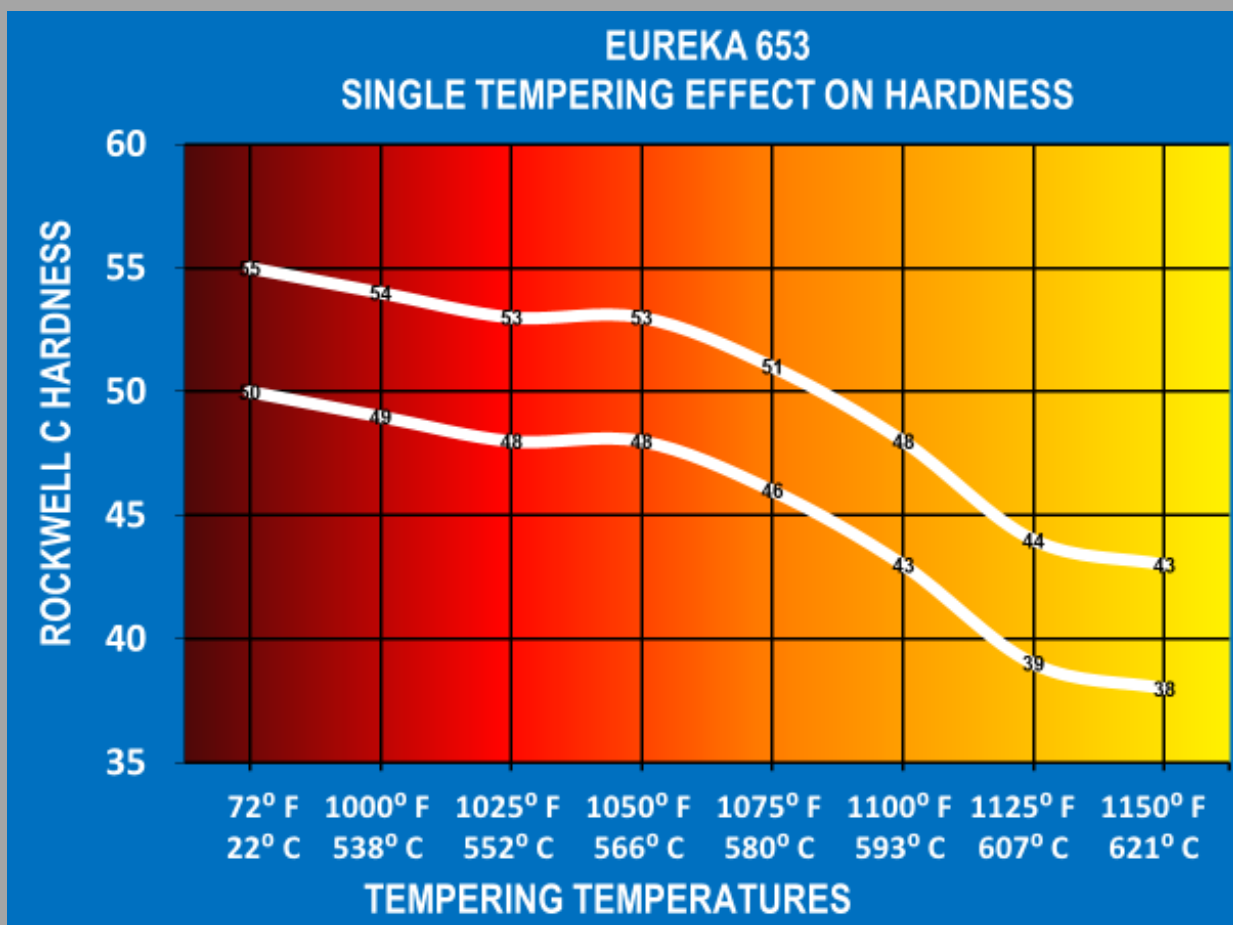
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TEMPERING DATA

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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