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**Revised:**

## INTRODUCTION

**Eurekamatic CI H-1 Cored Wire** was developed to exceed the quality and reduce the cost of solid wires for welding working surfaces directly on cast iron. This alloy was exclusively engineered for welding on any automotive grey or ductile cast irons, hardenable or nonhardenable. **The Eurekamatic CI H-1** has a very smooth arc with low smoke, and low spatter.

## METALLURGICAL CHARACTERISTICS

**Eurekamatic CI H-1 Cored Wire** is designed to form a hard working surface directly on cast iron. The alloy is exceptionally strong and wear resistant which out performs cast iron. The weld deposits display moderate impact resistance. Single or multiple layers are in the low to mid 50 HRC range.

## RECOMMENDED APPLICATIONS

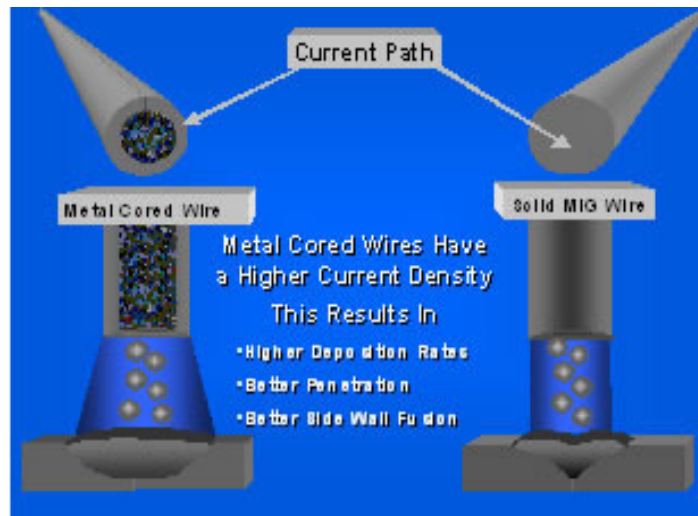
Mainly applied on automotive cast irons for form, trim, flange, or hem dies. Used anywhere where metal to metal wear is a factor.

## THE CORED WIRE ADVANTAGE

The outer metallic sheath of a cored wire conducts the electrical current for welding. Because of the fabricated, composite nature of cored wires, their current carrying density is greater, which improves deposition rates at equal current levels when compared to solid MIG wires.

The internal components of a metal cored wire are composed chiefly of the alloys, manganese, silicon, and in some cases, nickel, chromium and molybdenum as well as very small amounts of arc stabilizers such as sodium and potassium, with the balance being iron powder. Metal cored wires give the benefit of being able to have alloy compositions formulated for specific applications in smaller batches than the normal large heats of solid wire. Metal cored wires have little to no slag forming ingredients in the internal fill of the wire.

Just like solid MIG wire, welds made with a metal cored wire will only have small silicon islands from the deoxidized products that appear on the surface of the weld. This allows for multiple pass welding without slag removal.



## HARDNESS AND CHEMICAL ANALYSIS DATA

### Pure Weld Metal

41 - 42HRC

C .13

Mn 3.20

Si .55

Co 3.00

Ni 1.60

Cu .96

### One Layer on Cast Iron

56 - 57HRC

C .36

Mn 3.30

Si .78

Co 2.70

Ni 1.60

Cu .90

**Two Layers on Cast Iron**

50 - 51HRC

C .21

Mn 3.60

Si .70

Co 2.80

Ni 1.70

Cu .92

**Three Layers on Cast Iron**

49 - 50HRC

C .17

Mn 3.40

Si .70

Co 2.80

Ni 1.68

Cu .90

**Microstructure View at 500X**



## PREPARATION AND WELDING PROCEDURE

1. Prepare welding surfaces, remove all surface dirt, scale, or any fatigued metal.
2. All cracks and heat checks must be removed entirely. This can be accomplished by grinding or machining.
3. Preheat to 400-600F (heat for one hour per inch maximum cross sectional thickness at temperature).
4. Select D.C. reverse polarity, short arc transfer and use Ar CO2 gas.
5. Utilize good welding techniques – run stringer beads, fill arc craters, and peen thoroughly after each welding session to offset shrinkage and welding stresses.
6. Control inner pass temperature as close as possible to preheat temperature.
7. After welding, **post heat** at the temperature used to preheat to equalize thermal gradients.
8. After post heating, slow cool the weld deposits.

## WELDING PARAMETERS

Type	Size	Amp Range	Volts
CI H-1	.045"	70 – 150	12 – 20
Use Argon Co2 shielding gas at 20 - 40 C.F.H.*			

\*Cubic foot per hour