

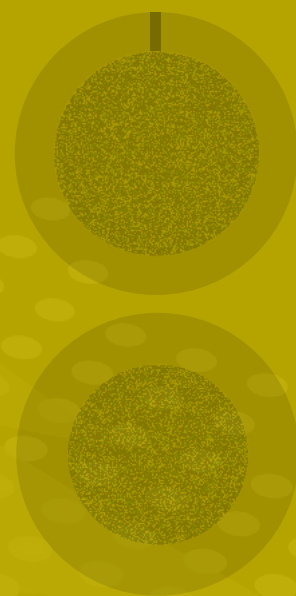


# SEAMED VS. SEAMLESS FLUX CORED WIRES

Myths and Facts 

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Myths



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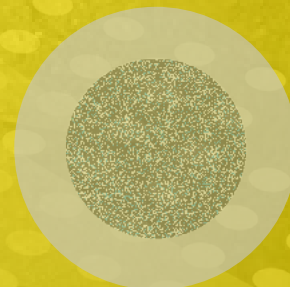
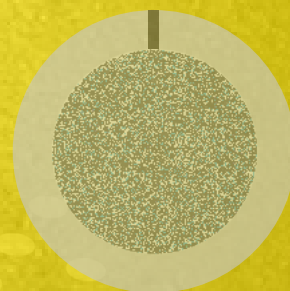
## Seamed vs. Seamless Flux Cored Wires

Neil Farrow - Global Product Manager – ESAB Cored Wires

ESAB introduced gas-shielded flux cored wires in 1957, and we have more experience than anyone else in the world in developing and manufacturing electrodes.

Flux cored wires come in seamed or seamless versions, and ESAB offers both. In recent years, some manufacturers of seamless wires have propagated myths about seamed vs. seamless wires.

This article sets the record straight, then illustrates how ESAB seamed wires provide increased deposition rates up to 20% and superior low temperature toughness without having to worry about moisture pick-up.



# SEAMED VS. SEAMLESS FLUX CORED WIRES



## MYTH-BUSTING

### MYTH 1.

Seamless wires have superior resistance to moisture pick-up.

### FACT 1.

Both seamed and seamless cored wires retain their claimed <math><5\text{ml}/100\text{g}</math> of diffusible hydrogen after 14 days exposure at 20°C and 80% relative humidity.

### MYTH 2.

Seamed flux cored wires tend to suffer more from hydrogen-induced cracking.

### FACT 2.

All ESAB offshore grades of flux cored wire are below the lowest EN ISO classification (H5). So, if the correct weld procedures are followed, hydrogen-induced cracking will not occur.

### MYTH 3.

Seamless wires don't require special storage.

### FACT 3.

There is no difference between storage instructions of seamed or seamless cored wire types. Both should not be left on the wire feeder for a long period of time and should be stored in a dry environment.

### MYTH 4.

The copper coating on seamless wire provides better corrosion protection.

### FACT 4.

Copper coating does not prevent corrosion it just hides the rust but can flake, block liners and cause feeding issues.

# SEAMED VS. SEAMLESS FLUX CORED WIRES



## MYTH-BUSTING CONT.

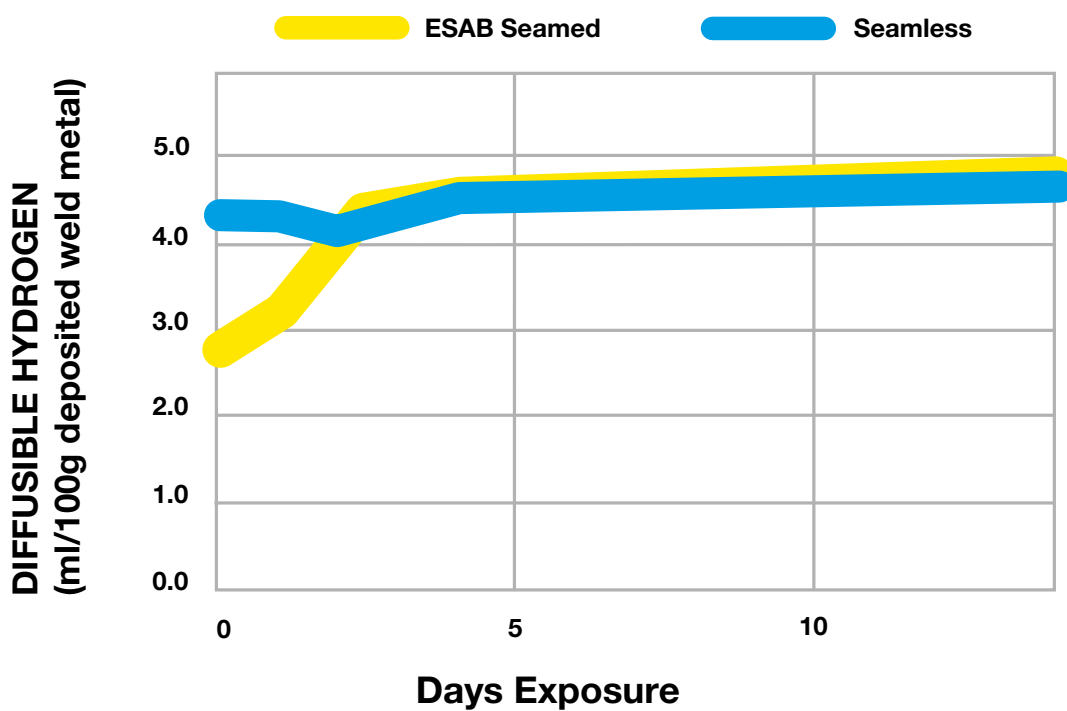


### MYTH 2.

Seamed flux cored wires tend to suffer more from hydrogen-induced cracking. ❌

### FACT 2.

All ESAB offshore grades of flux cored wire are below the lowest EN ISO classification (H5). So, if the correct weld procedures are followed hydrogen-induced cracking will not occur. ✅



- Tested according to EN ISO 3690
- 1.2mm diameter
- Current 250A
- Electrode extension 15mm
- Voltage 28V
- Shielding gas M21
- Exposed at 80% RH / 20°C



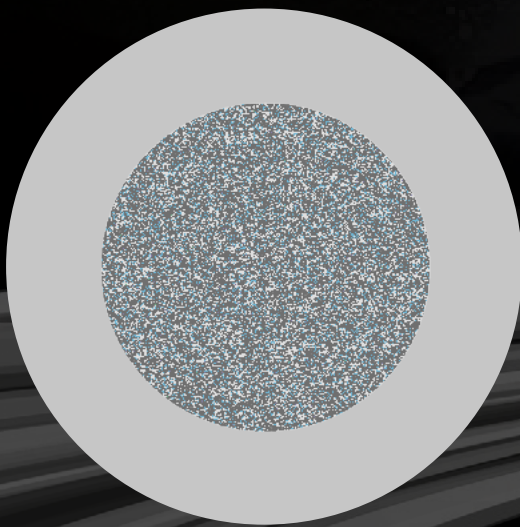
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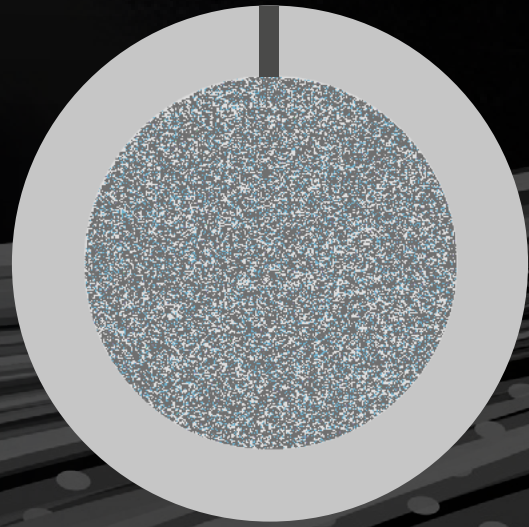
## FACT - INCREASED PRODUCTIVITY



- Cross sections show that seamed wires have a thinner wall than seamless.
- Thinner wall section results in higher current density.
- Higher current density results in faster burn-off rate and higher deposition rate up to 20%.

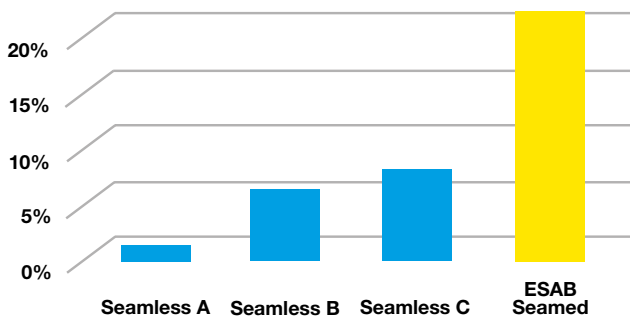


SEAMLESS

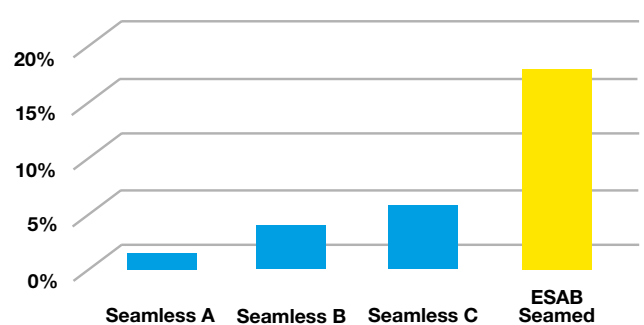


SEAMED

Extra Deposition Rate at 200A



Extra Deposition Rate at 250A



All wires 1.2mm diameter, electrode extension =17mm

# SEAMED VS. SEAMLESS FLUX CORED WIRES

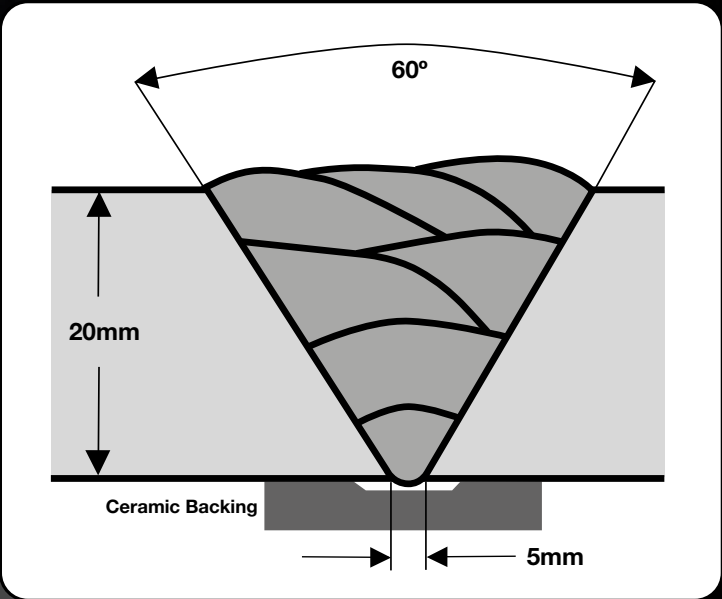


## FACT - SUPERIOR MECHANICAL PROPERTIES

ESAB seamed flux cored wires offer superior low-temperature toughness at higher heat inputs. ✓

- To take advantage of high productivity, higher heat inputs are required.
- Competitors seamless wires cannot handle the higher heat input during welding, as the toughness suffers.

20mm vertical up vee-butt weld, using 1.2mm diameter wire and ceramic backing with M21 shielding gas. Heat input range 1.8 - 2.2 kJ/mm.



E71 Grades	Rp0.2 (MPa)	Rm (MPa)	A4 (%)	Cv @-20 (J)	Cv @-40 (J)
ESAB Seamed	564	634	28.7	71	51
Competitors Seamless	510	591	29.6	77	33
E81 Grades				Cv @-40 (J)	Cv @-60 (J)
ESAB Seamed	558	629	33.0	94	66
Competitors Seamless	532	611	26.6	68	40

○ = < 47J - FAILED.

## ▶ UNRIVALED SERVICE AND SUPPORT.

All ESAB products are backed by our commitment to superior customer service and support. Our skilled customer service department is prepared to quickly answer any questions, address problems, and help with the maintenance and upgrading of your machines. And our products are backed with the most comprehensive warranty in the business.

With ESAB, you can be sure you purchased a product that will meet your needs today and in the future. Product and process training is also available. Ask your ESAB sales representative or distributor for a complete ESAB solution.

For more information please visit [esab.com](https://www.esab.com)



ESAB FLUX CORED WIRES  
PRODUCT INFORMATION ▶

