

Eczacıbaşı - Lincoln Electric

**AS SG2-CF**  
**AS SG3-CF**

*Non Copper  
Coated GMA  
Welding Wire*

# NEW GENERATION GMA WELDING WIRE

- Superior welding wire
- Trouble-free wire feeding

AS SG2-CF and AS SG3-CF non copper coated gas metal arc welding wires provide higher productivity with improved weld quality and reduce overall welding costs.

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# AS SG2-CF & AS SG3-CF (Non-Copper Coated Welding Wire)



## Gas Metal Arc Welding Wire for Un-Alloyed Steels



**Copper Free** range is the non copper coated version of AS SG2 and AS SG3 gas metal arc welding wire with higher performance.

Regardless of welding operations; manual, mechanised or robotic (full automatic), **AS SG2-CF** and **AS SG3-CF** wires offer significant improvements in quality and productivity due to special surface production process; Smooth Surface Technology (**SST**).

In contrary to often claimed, copper coating is used with a purpose to improve wire feeding. It does not have any effect on corrosion resistance or on conductivity. Weak point of copper coating is that the copper is a weak alloy and it may suffer from mechanical damage during feeding. In course of feeding, it breaks off and begins to contaminate the feeding units. As long as the

process is sustained, such chip off gradually causes obstructions in spiral, torch and contact nozzle. Such a situation produces a resistance in wire feeding and eventually stops the welding process due to burnback. Non copper coating does not cause any obstructions due to copper failures and ensures a high quality production with trouble free wire feeding, high arc stability.

Range of non-copper coated wires with **SST** is developed and applied after long time of research and development studies. Smooth Surface Technology has a number of superior features with advantages compared to copper coated wires which are listed in Table 1.



Superior SST quality

\*(**SST**) Smooth Surface Technology; wire feeding performance without trouble for a longer time.

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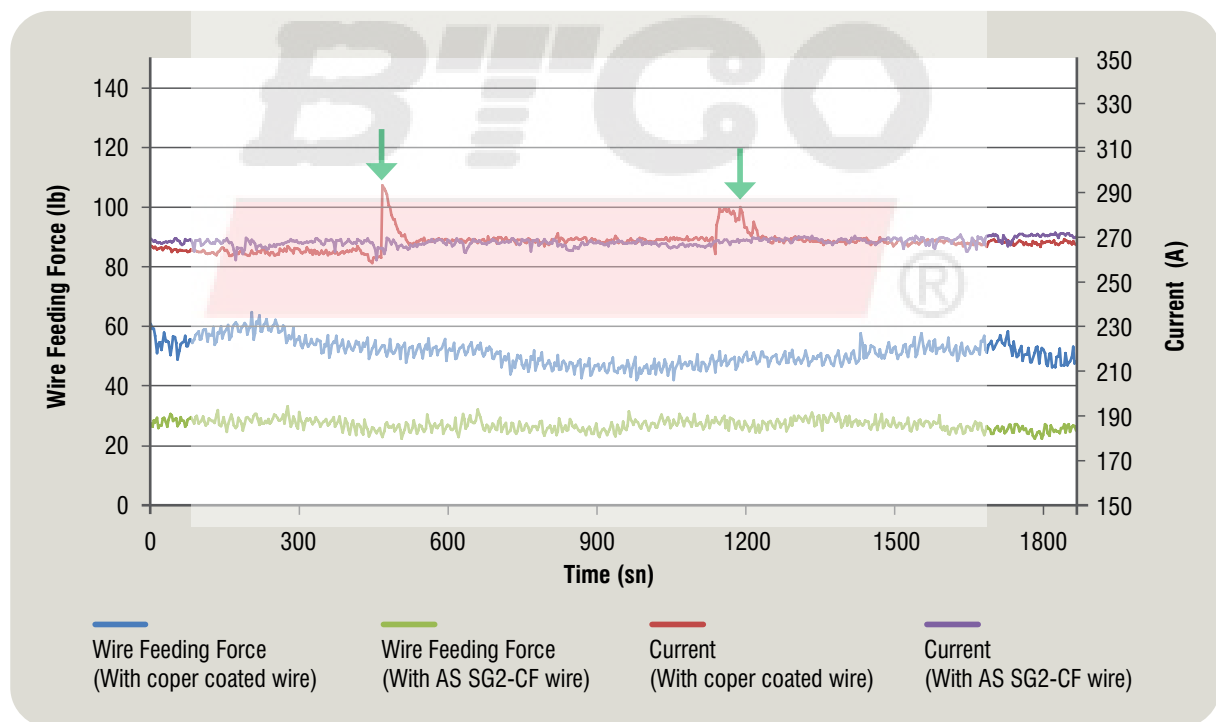
**Table 1.** Benefits of AS Non Copper Coated Range.

Properties	Advantages
Consistent Welding Performance	Uniform weld bead appearance
Stable arc with lower feeding force	High weld quality, Reduced rework or post weld cleaning
Excellent arc ignition	Reduced post weld cleaning
Trouble free wire feeding	Higher productivity, reduced downtime, longer spiral and contact tip life without clogging.
Low fume emission	Healthier working environment.

In ASKAYNAK's own research, **AS SG2-CF** and **AS SG3-CF** was compared with a selection of copper coated MIG wires from a different supplier in the market. Unstable feeding results an unstable arc with more spatter and less straight weld beads. It is seen from Figure 1, feeding force which is needed to push a

wire through a liner and torch shows that feeding force is not only lower for CF but also more stable for CF range than usual copper coated wires.

For arc stability, current variance of copper coated is pronounced clearly due to less stable arc.



**Figure 1.** Results of Wire Feeding Force and Current Variations.

**AS SG2-CF** and **AS SG3-CF** products are available in spools of **15 kg** and in drums of **250 kg** to provide a continuous welding for automation welding.

Diameter	1.0 mm	1.2 mm	1.6 mm	Spool	Drum
GMAW	x	x	x	15 kg	250 kg

# AS SG2-CF & AS SG3-CF (Non-Copper Coated Welding Wire)



## Gas Metal Arc Welding Wire for Un-Alloyed Steels

### AS SG2-CF

AS SG2 is a copper-free (non-copper-coated) gas metal arc welding wire in 15 kg spools or 250 kg drums. It is particularly designed for semi-automatic and full-automatic GMAW applications. Working temperature can range between -50 to 450°C. CO<sub>2</sub> or 80 % Ar- 20 % CO<sub>2</sub> are used for gas shielding.

### AS SG3-CF

AS SG3 is a copper-free (non-copper-coated) gas metal arc welding wire in 15 kg spools or 250 kg drums. It is particularly designed for semi-automatic and full-automatic GMAW applications. Working temperature can range between -50 to 450°C. CO<sub>2</sub> or 80 % Ar- 20 % CO<sub>2</sub> are used for gas shielding.

#### Classification

TS EN ISO 14341-A: G 42 3 C 3Si1 / G 42 5 M 3Si1  
AWS A5.18 : ER70S-6

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#### Chemical Composition (W%), Typical, Wire

C : 0.08  
Si : 0.85  
Mn : 1.50

#### Chemical Composition (W%), Typical, Wire

C : 0.08  
Si : 1.00  
Mn : 1.70

#### Typical weld metal composition (CO<sub>2</sub> gas shielding)

C : 0.06  
Si : 0.55  
Mn : 1.10

#### Typical weld metal composition (CO<sub>2</sub> gas shielding)

C : 0.06  
Si : 0.60  
Mn : 1.20

#### Mechanical Properties, Typical, All Weld Metal

Yield Strength : 440 N/mm<sup>2</sup>  
Tensile Strength : 540 N/mm<sup>2</sup>  
Elongation (L=5d) : 30 %  
Impact (ISO-V) : 60 J (-50°C)

#### Mechanical Properties, Typical, All Weld Metal

Yield Strength : 470 N/mm<sup>2</sup>  
Tensile Strength : 570 N/mm<sup>2</sup>  
Elongation (L=5d) : 25 %  
Impact (ISO-V) : 60 J (-50°C)

#### Shielding Gases (ISO 14175 / EN 439)

MIG : M21 - Ar + %5-25 CO<sub>2</sub>  
C1 - CO<sub>2</sub>(%100)

#### Shielding Gases (ISO 14175 / EN 439)

MAG : M21 - Ar + %5-25 CO<sub>2</sub>  
C1 - CO<sub>2</sub>(%100)



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