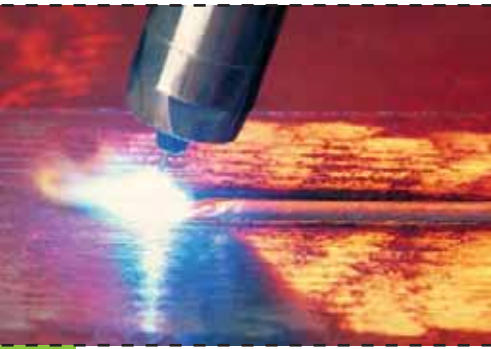


# ***CARBOFIL GOLD***

Solid MAG wire for welding structural steels with MHC technology.  
The new wire for enhanced productivity.





In the industrial sectors of automotive and transport, manufacturing, pipe welding, steel buildings and structural steel works are required highly reliable welding consumables for use without compromise during welding.



What is required when MAG welding?

- ✓ Arc stability
- ✓ Excellent feeding properties of the wire
- ✓ Low spatter
- ✓ Good start and stop characteristics
- ✓ Low consumption of contact tips





# Our proposition



## The results of our research teams...

- **CARBOFIL GOLD** are the new solid wires developed by our **Welding Research Centre** (CTAS) for mild steel and carbon manganese steel applications to increase your productivity.
- The **CARBOFIL GOLD** wire series represents the sum of our experience in solid wire production, Germany technology, reliability and our R&D studies.
- **Air Liquide Welding Research Centre** has invested considerable resources in the last 3 years to fundamentally investigate how to increase weldability performance in MAG applications and how to produce a product that combines a high weldability performance, product quality and easy handling for welders.

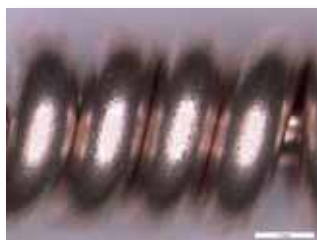
## ...and of our dedicated German plant:

- The GOLD wire series is produced in our manufacturing plant located in Germany with a dedicated production system that guarantees excellent product quality. Wire quality means not only a colour on the surface, but also what is under the coating because this is the difference.



## A new drawing process: the GOLD drawing process

- **CARBOFIL GOLD** wires are produced in our plant where a **new drawing process** has been developed that is able to guarantee a low content of elements associated with arc instability.
- Additionally, the GOLD drawing process produces a wire rod surface which is extremely clean and hence a coating treatment of outstanding quality and adherence.



Bending test for adherence  
coating control

## Customer's testimonies

*"The exceptional arc stability of this wire gives a highly consistent welding quality"*

*"The wire is easy to weld and the welders now choose the CARBOFIL GOLD wire because it makes their life easy"*

*"The low spatter speeds up weld cleaning"*

*"The start and stop characteristics are very soft producing a consequently good bead aspect."*

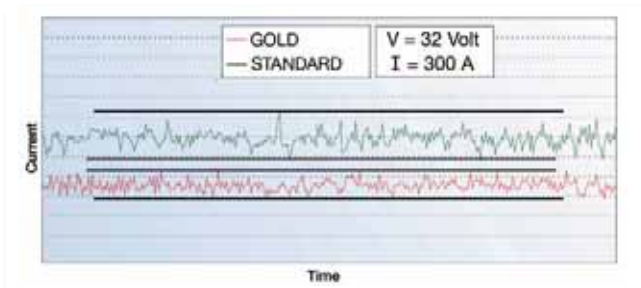
*"The high quality of wire is always consistent"*

# CARBOFIL GOLD



## MHC: Metallic Hybrid Coating Characteristics that make the difference

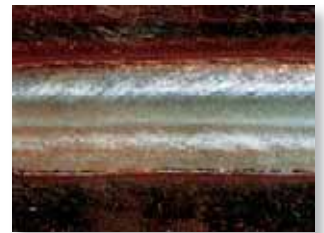
**Exceptional arc stability**, the GOLD wire shows less variance in current than standard wires on the market.



### ■ Conditions of the test:

- ✓ Automatic welding on S355 sheet – 18mm thickness (turning disc) with wire diameter 1.2 mm
- ✓ Semi automatic welding with cooled torch TR 400
- ✓  $I = 300A$
- ✓ Wire feed speed = 11 m/min
- ✓ Contact tip distance = 20 mm
- ✓ Welding speed = 40 cm/min
- ✓ Shielding gas: ATAL 5A (Ar/CO<sub>2</sub> mixture 82/18)

**A very low presence of spatter**, that can be removed very easily.



**A very good and shiny bead aspect** with a low presence of silicates

**These exceptional characteristics of the CARBOFIL GOLD wires are the results of the innovative MHC (Metallic Hybrid Coating) surface coating produced by the innovative GOLD drawing process.**

- The surface treatment of the solid wire surface by metallic alloys gives confidence of excellent electrical contact, protection from moisture and a surface free from residuals of chemical process which can result in impaired welding characteristics
- In addition to these quality enhancements, the new hybrid coating treatment developed for **CARBOFIL GOLD** wires gives exceptionally good feeding characteristics due to the reduction of the glide force through the liner and the controlled thickness of the coating. The high adherence of the coating reduces peeling and clogged liners.
- The final result is that contact tip wear is reduced, with consequently less down time.

### **A reduced metallic coating level in the welding fumes**

- The new hybrid coating treatment allows the metallic content in the welding fume to be reduced, in relation to the main competitor products, without decreasing the level of protection and functionality of the coating.

### **The quality control process**

The detail of the **CARBOFIL GOLD** drawing process gives the possibility to check every single stage of the manufacturing process resulting in a high quality and consistent product. All the spools and drums of **CARBOFIL GOLD** wire have the same quality, the wire is easy to use and this gives welders simplified power source regulation.



## The NEW easy opening box

The packaging of CARBOFIL GOLD wires has been completely renewed, in order to guarantee better safety and less down time, leading consequently to greater productivity.

### CARBOFIL GOLD - Data sheet

#### Classification

	ISO 14341-A	AWS A 5-18
CARBOFIL 1 GOLD	G 42 4 M G3Si1 G 42 3 C G3Si1	ER 70S-6
CARBOFIL 1A GOLD	G 46 4 M G4Si1 G 46 3 C G4Si1	

#### Approvals

TÜV	DB	ABS	BV	DNV	GL	LRS	Rina
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓

#### Chemical analysis of wire (Typical values in %)

	C	Mn	Si	P	S
CARBOFIL 1 GOLD	0.08	1.50	0.90	≤0.025	≤0.025
CARBOFIL 1A GOLD	0.06	1.70	0.90	≤0.020	≤0.030

#### All-weld metal Mechanical Properties

	Heat treatment	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation A5 (%)	Impact Energy ISO - V (J) - 40 °C
CARBOFIL 1 GOLD	As Welded	≥ 420	500-640	≥ 24	≥ 47
CARBOFIL 1A GOLD	As Welded	≥ 460	530-680	≥ 26	≥ 47

Gas test: according to EN 14175: M21

#### Shielding gas according EN 14175 standard: M21 or C1

#### Materials

CARBOFIL 1 GOLD	S(P)235 to S(P)355; GP240; GP280
CARBOFIL 1A GOLD	S(P)235 to S(P)460; GP240; GP280

#### Storage

Keep dry and avoid condensation.

#### Current condition and welding position

DC +



#### To order

Diameter (mm)	Conditioning	Winding	Weight (kg)	CARBOFIL 1 GOLD	CARBOFIL 1A GOLD
0.8	B 300	PLW*	16	W 000 282 707	W 000 282 788
1.0	B 300	PLW*	16	W 000 282 709	W 000 282 790
	Drum RPA**	-	300	W 000 282 710	W 000 282 791
	Drum SQPA***	-	250	W 000 282 711	W 000 282 792
	B 300	PLW*	16	W 000 282 713	W 000 282 794
1.2	Drum RPA**	-	300	W 000 282 714	W 000 282 795
	Drum SQPA***	-	250	W 000 282 715	W 000 282 796

\* Precision Layer Wound

\*\* Drum RPA: Round Pack drum

\*\*\* Drum SQPA: Square Pack drum

