



Our aim is to be one-stop solutions provider for the industry of "Welding and Cutting!". We are dedicated to providing the welding and cutting industry with the highest quality products and services.

We strive to provide our customers with the best customer service and support, as well as the most reliable, efficient and economical solutions for their welding and cutting needs.

Our commitment to customer service and satisfaction is at the top of our list of priorities. We want to be the first choice when it comes to finding the perfect solution for their welding and cutting requirements.

With customer-oriented philosophy, we are dedicated to providing the welding and cutting industry with the highest quality products and services. We strive to provide our customers with the best customer service and support, as well as the most reliable, efficient and economical solutions for their welding and cutting needs.

We take great pride in developing meaningful and long-term partnerships with our customers and we look forward to working with you to create a mutually beneficial business relationship in near future!

**TOKO Vision**

Aims to be one-stop solutions provider for the industry of "welding and cutting" !

**TOKO Mission**

To build long-term relationships with our customers, and committed to providing the highest level of support and service whenever it is needed!

**TOKO Value**

"Customer-oriented, Mutual respect, Self-improvement" Creating more values for our customers!

For more specifications at <https://www.tokoc.com/welding.htm>

## FCW WIRE A5.29 E81T1-K2C

TOKO AWS A5.29 E81T1-K2C, is a Co2 gas shielded low temperature carbon steel alloy flux cored welding wire, which is designed for welding 560 N/mm2 high tensile strength steel for low temperatures. The weld metal contains about 1.5%-Ni and makes good notch toughness at temperatures under -60°C of welding condition.



It provides excellent usability with stable ARC and efficiency in all-positions of welding. It is suitable for butt or fillet welding of offshore steel structure, petrochemicals engineering, shipbuilding, pressure vessel, LNG and LPG carriers, and storage tanks, etc.

Chemical Compositions (%)									
	C	Mn	Si	S	P	Cr	Ni	Mo	Balance
Standard	≤0.15	0.50~1.75	≤0.80	≤0.03	≤0.030	≤0.15	1.0~2.0	≤0.35	---
Test	0.05	1.25	0.20	0.008	0.015	0.02	1.25	0.005	---
Mechanical Properties							Impact Energy	Average	
	Yield Strength (N/mm) (kgf/mm2)		Tensile Strength (N/mm2) (kgf/mm2)		Elongation (%)		Value (J)	Value (J/°C)	
Standard	≥470		550~690		≥19.50		≥47	-40°C	
Testing	590		650		26.50		70 71 72	70 J	
Sizes and Current Range									
Diameter (MM)					1.2MM			1.6MM	
Current (Amp)		Flat			280~300 A			290~310 A	
ARC Voltage		Vertical Up/Overhead			240-250 V			240-250 V	

Attentions before of Welding:

1. The oil stains and rust on the weldments should be cleared away before welding.
2. Shielding gas flow rate: 20-25L/min during welding.
3. Designed for welding with 100% CO2.
4. Storage : Vacuum packaging less than 12 months, other packaging less than 6 months.

## SUBMERGED WELDING WIRE A5.17 EM12K

TOKO AWS A5.17 EM12K is a copper-coated carbon-steel solid wire for submerged arc welding wire. EM12K is a versatile, general purpose product suitable for joining a wide range of non-alloyed steels with a wide variety of flux(es). submerged arc welding wire from grainier in a variety of diameters to fit submerged arc welding (SAW) applications.



There is no splashing and arc stimulation in the melting of the welding wire. the welding line surface is bright and clean, and the welding quality is guaranteed and it is prone to realize mechanization and automatic welding.

This series of submerged arc welding products are widely used in shipbuilding industry, large steel structure, pressure vessels, bridges and so on.

### Mechanical Properties of Deposited Metal:

Test Item	Rm(MPa)	Rel (Mpa)	A(%)	KV2(J)
Guarantee	415-550	≥330	≥22	≥27(-20°C)
General Result	470	365	30	60

### Specification and Current:

Diameter(mm)	2.0	2.5	3.2	4.0	5.0
Current(A)	300-400	350-450	425-525	475-575	550-650

### Chemical Composition(%):

Model	C	Mn	Si	S	P	Ni	Cu	Cr
AWS EL8	≤0.10	0.30-0.55	≤0.03	≤0.030	≤0.030	≤0.30	≤0.20	≤0.20
AWS EM12	≤0.10	0.80-1.10	≤0.07	≤0.030	≤0.030	≤0.30	≤0.20	≤0.20
AWS EM12K	≤0.12	1.50-1.90	≤0.07	≤0.035	≤0.035	≤0.30	≤0.20	≤0.20

Diameter Available: 1.8MM, 2.0MM, 2.4MM,2.6MM,2.8MM,3.0MM,3.2MM,4.0MM etc

## FCW WIRE A5.20 E71T-1C

TOKO AWS A5.20 E71T-1C is a flux core wire designed for MIG welding of mild steel.It can be used for all position welding and can be used on light gauge steel or thin plate although best results are achieved on thicker metal.E71T-1 is flux core wire,which means it doesn't need any shielding gas to go with it. It is a common choice for backyard metal workers due to its affordability, availability and usability.



AWS A5.20 E71T-1C flux core ingredients produce a fast freezing slag that facilitates out of position welds. Bead contour is flat to slightly convex. Slag is easy to remove and low spatter provides easy post Weld cleaning.

### Chemical Composition:

Elements	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Fe
Requirement	≤0.12	≤1.75	≤0.90	≤0.03	≤0.03	≤0.35	≤0.50	≤0.20	≤0.30	~
Tested	0.06	1.30	0.50	0.014	0.002	0.012	0.063	0.022	0.005	~

### Mechanical Properties:

	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Test Temp (°C)	Absorbed Energy(Ave) (J)	Type Current	Amperage	ARC Voltage	Shielding Gas
Required	≥390	490~670	≥22	-20	≥27	DC+	150~300A	23~30V	CO2
Test Result	480	565	27.5	-20	(89/90/95 )	DC+	150~300A	23~30V	CO2

Diameter: 0.8mm / 0.9mm/ 1.0mm / 1.2mm / 1.6mm etc

### MIG WELDING WIRE A5.18 SG2

TOKO ER70S-6 is a Co2 mild steel welding wire: it is suitable for mild to medium strength steels. It is optimal for applications such as thin gauge steel and root passes, highly restive and low alloy steels, and can also be used for bridge and other structural steel applications. It is typically used in welding steel which contains manganese, which makes it difficult to weld. This wire is an all-position wire, but it should be used in short arc welding applications. It works best with CO2 or 75/25 Argon CO2 mixture and usually requires a voltage of more than 18 volts when welding with DCEP polarity.



Applications: Automobile frames, farm equipment, sheet metal, ships and barges, rail cars, trailers, ornamental iron, metal furniture, storage bins and general fabrications.

#### Chemical Compositions

Items	C	Mn	Si	P	S	Ni	Mo	Cu	V
Standard	0.06~0.15	1.4~1.85	0.8~1.15	≤0.025	≤0.035	≤0.15	≤0.50	≤0.03	
Actual	0.08	1.51	0.89	0.015	0.013	0.016	0.006	0.18	0.003

#### Mechanical Performance

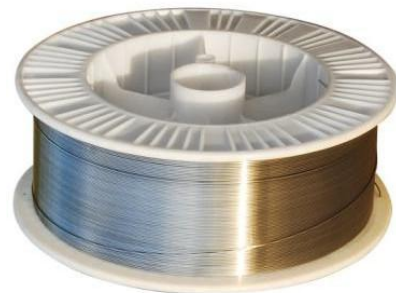
Tensile strength Rm(Mpa)	Yield Strength Rel or Rpo.2 (Mpa)	Elongation Ratio(%)	Fracture Energy (J)	Protection Gas
545	452	29	91 (-30 °C)	CO2、 Ar

Packing: 15Kg/Spool/Carton, 72 Spools/Pallet, 24Pallets/20FT Container.

### STAINLESS WIRE A5.9 ER316L

TOKO AWS A5.9 ER316L, main component of ER316L-16 is 18Cr-12Ni-2Mo. It is an all position welding MIG Wire. The weld-ability is good. Feeding wire smoothly will enable stable arc, excellent welding performance and spatter is very low. It has good resistance for acetic acid, sulfuric acid, phosphoric acid and salt corrosion because it contains Molybdenum.

USES: It is widely used in petrochemical, chemical fertilizer equipment such as O22Cr17Ni12Mo2 (SUS 316L) and other materials of welding.



The welding should be operated in clean surface without rust, moist, oil and dust.

AWS	Chemical Composition of Deposited Metal(%)							
	C	Si	Mn	P	S	Cr	Ni	Mo
ER304L	≤0.03	≤1.00	≤2.00	0.03	0.03	18.0-20.0	8.0-12.0	--
ER308L	0.03	0.3-0.65	1.0-2.5	0.03	0.03	19.5-22.0	9.0-11.0	0.75
ER309L	0.03	0.3-0.65	1.0-2.5	0.03	0.03	23.0-25.0	12.0-14.0	0.75
ER310	0.08-0.15	0.3-0.65	1.0-2.5	0.03	0.03	25.0-28.0	20.0-22.5	0.75
ER312	0.15	0.3-0.62	1.0-2.5	0.03	0.03	28.0-32.0	8.0-10.5	0.75
ER316L	0.03	0.3-0.65	1.0-2.5	0.03	0.03	18.0-20.0	11.0-14.0	2.0-3.0
ER316LSI	0.03	0.65-1.0	1.0-2.5	0.03	0.03	18.0-20.0	11.4-14.0	2.0-3.0

Other grades: ER201,ER304,ER308,ER308L,ER309,ER309L,ER316,ER316L,ER430,etc.

### ALUMINIUM WIRE A5.10 ER4043

TOKO AWS A5.10 ER4043 is Aluminum-alloy MIG wire, this welding wire is mainly used where higher weld strength and greater ductility is required and is compatible with 5050, 5052, 5083, 5154, 5356, 6061, 6363 alloys.

5356 has greater resistance to corrosion (salt water) and better color match after anodizing.

Application: mainly used in electrician, chemical, sports equipment, furniture bicycle and such other aluminum alloy profile welding.



AWS No.	Chemical Composition(%)							
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
ER4043	4.5-6.0	0.80	0.30	0.05	0.05	~	0.10	0.20
ER5356	0.25	0.40	0.10	0.05-0.20	4.5-5.5	0.05-0.20	0.10	0.06-0.20

Other Items: ER1060, ER1100, ER4043, ER4047, ER5356, ER5183, ER5556,etc.

Diameter: 0.8mm,0.9mm,1.0mm,1.2mm,1.6mm etc

Packing: 1.0Kg/Spool, 2.5Kg/Spool, 5Kg/Spool, 7.0Kg/Spool

### WELDING RODS A5.1 E6013

TOKO AWS A5.1 E6013 Welding Rod is an excellent all-purpose mild steel welding rod which is used for general purpose and low current welding on mild steel. It is good for use on thin metals and can be used for butt and lap joints, T-joints, and fillet welds. It produces quality welds rusty or scaled pieces by cleaning off of the surface rust and scale. The rod also has a good bead appearance and runs at a low temperature, which helps minimize warping when welding. It is a great choice for light fabrication and welding galvanized or painted metals.



It is widely used in ordinary tensile strength mild steel structures especially suitable for intermittent welding to sheet steel and small work pieces as well as cosmetic welding with smooth and shiny appearance.

#### Chemical Composition (%):

	C	Mn	Si	S	P	Ni	Cr	Mo
Standard	≤0.20	≤1.20	≤1.00	≤0.035	≤0.040	≤0.30	≤0.30	≤0.30
Typical	0.070	0.41	0.26	0.021	0.023	0.018	0.027	0.002

### Mechanical Properties:

Yield Point Reh (Mpa)	Tensile Strength Rm (Mpa)	Elongation A4(%)	Impact Value(J)	
			20°C	0°C
≥306	400-560	≥22	—	≥47
395	480	29	110	80

### Sizes, Pieces & Recommended Current (AC or DC):

Specification(mm)	2.5×300	2.5×350	3.2×350	4.0×400	4.0×450	5.0×400
Pieces(5.0kg)	≈300	≈255	≈157	≈90	≈80	≈59
Current(A)	F,H	60-90	60-90	80-130	150-190	180-250
	V,OH	50-80	50-80	80-110	130-170	130-170

### WELDING RODS A5.1 E6011

TOKO AWS A5.1 E6011 welding rods is an electric arc welding rod made of a cellulose potassium type coating on a low-carbon steel core wire. It is mostly used for AC Or DC welding of cast iron, low-hydrogen steels, galvanized steel, cold rolled steel and free-machining steels. It is used in all positions in a downhill welding process and provides an excellent wetting out of the coating material, even in the vertical-down positions. It creates a very desirable light chipping slag which is easily removed after welding. The cellulose content in the flux coating of a cellulose electrode like the E6011 is transformed into hydrogen, carbon monoxide and carbon dioxide gas in the arc which, in turn, increases the tensile strength of the welded part.



### Chemical Composition (%)

	C	Mn	Si	S	P	Ni	Cr	Mo
Standard	≤0.20	≤1.20	≤1.00	≤0.035	≤0.040	≤0.30	≤0.20	≤0.30
Typical	0.096	0.67	0.20	0.024	0.024	0.008	0.041	0.001

### Mechanical Properties

	Yield Point Reh (Mpa)	Tensile Strength Rm (Mpa)	Elongation A4 (%)	Impact Value(J)
				- 30 °C
Standard	≥330	≥430	≥22	≥27(Average)
Typical	405	500	30	75

### Sizes, Pieces & Recommended Current (AC or DC)

Size(mm)	2.5×300	3.2×350	4.0×350	5.0×350
Pieces(5.0kg)	≈328	≈185	≈120	≈76
Current(A)	OH,VD	30-50	70-100	90-140

### WELDING RODS A5.1 E7018

TOKO AWS A5.1 E7018 welding rods is an all-position, iron powder low hydrogen rod used for welding low carbon and low alloy steels. It is designed for use on components up to C-Mn steels and can also be used for some alloy steels. It is typically used with the shielded metal arc welding (SMAW) process and can be used on either Direct Current (DC) or Alternating Current (AC). The E7018 welding rod has an iron coating that provides excellent arc starting and low spatter, while the low hydrogen content prevents hydrogen cracking. It also offers good impact strength and notch toughness.



It is widely used in projects of ship, boilers, high pressure vessels, bridges, skyscrapers, offshore drilling platforms, nuclear power plants and so on.

The groove of base metal should be cleared impurities away and the electrode must be baked at 400°C then be held 1-2 hours before welding, 2.5mm or less one should be done by 350°C then be held 1 hour.

#### Chemical Composition:

	C	Mn	Si	S	P	Ni	Cr	Mo
Standard	≤0.15	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.20	≤0.30
Typical	0.068	1.36	0.51	0.010	0.016	0.022	0.016	0.010

#### Mechanical Properties :

	Yield Point Reh (Mpa)	Tensile Strength Rm (Mpa)	Elongation A4 (%)	Impact Value(J)
				-20 °C
Standard	≥375	490-660	≥22	≥47(Average)
Typical	440	540	30	150

#### Sizes, Pieces & Recommended Current (AC or DC) :

Size(mm)	2.5×350	3.2×350	4.0×400	4.0×450	5.0×400	5.0×450
Pieces(5kg)	≈248	≈145	≈85	≈75	≈51	≈45
Current(A)	F,H 70-100	100-140	140-170	140-170	190-240	190-240

Other grades: AWS A5.1 E7015, AWS A5.1 E7016, AWS A5.1 E7018, AWS A5.5 E9018 etc.

### TIG WELDING WIRE

Variety of Stainless Steel TIG Wire is primarily used for welding low carbon molybdenum-bearing austenitic alloys.

This filler metal has the same analysis as AWS A5.4 ER316, except that the carbon content is limited to a maximum of 0.03% in order to reduce the possibility of formation of inter-granular carbide precipitation.

Advantages:

- 1)Uniform and beautiful surface condition
- 2)Excellent coil-forming ability
- 3)High elasticity and high fatigue resistance
- 4)Strong corrosion resistance against exposure to the toughest atmosphere



AWS	Chemical composition of deposited metal(%)								
	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
ER308L	0.03	19.5-22.0	9.0-11.0	0.75	1.0-2.5	0.30-0.65	0.03	0.03	0.75
ER309L	0.03	23.0-25.0	12.0-14.0	0.75	1.0-2.5	0.30-0.65	0.03	0.03	0.75
ER316L	0.03	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5	0.30-0.65	0.03	0.03	0.75

### WELDING RODS A5.4 E309L-16

TOKO AWS A5.4 E309L-16 welding rods are helpful for use in positions that require welding of mild steels and low alloys, such as 304L and 347.

They are also recommended for joining of dissimilar steels such as 301 and 304, for joining stainless steels to mild or carbon steels, for buildup and repair on surface flaws, and for overlays in mildly corrosive atmospheres.







	0.3~0.5	0.2~1.3	0.5~1.9	23~27	0.014	32~36	0.75~1.5	0.02 ~ 0.20	Bal.
Melting metal mechanical performance									
	RP <sub>0,2</sub> (N/mm <sup>2</sup> )	R <sub>m</sub> (N/mm <sup>2</sup> )	A <sub>5</sub> %	Impact Energy (J) ISO-V			Hardness HRc / HV		
	>460	>600	>8	-20°C -40°C -60°C					

## SAW WELDING FLUX

Submerged Welding Flux such as SJ101, SJ301, SJ501, HJ107, HJ260, HJ431 etc variety of different type flux (rutile type), with alkalinity around 0.5-0.8. It is gray and round grain with mesh 10-60( 2.0-0.28mm). It can be operated with AC and DC. the wire shall be connected to positive pole when applying DC.

It has steady arc, nice weld formation, and easy in slag removal specially at high speed. The welding porosity scarcely occur.



Caution: It should be re-dried under 300-350°C for 2 hours. Rust, grease and moisture on the weldment should be removed before welding.

Usage: When applied to various welding wires (such as Ho8A, Ho8MnA), it can weld low-carbon steel, low-alloy high strength structural steel. It can be welding boiler, ships, pressure vessel, miniature LPG tanks, vehicles, structural steels etc.

### Chemical Composition(%):

SiO <sub>2</sub> +TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> +MnO	CaF <sub>2</sub>	S	P
25-35	50-60	5-10	≤0.05	≤0.05

### Mechanical Performance:

AWS NO	Standard Models	Yield Point Rel(MPa)	Tensile Strength R <sub>m</sub> (MPa)	Elongation A(%)	Impact Value Kv <sub>2</sub> (J)
EM12	F7A0-EM12	≥330	≥420	≥22	≥53(-18°C)
EM12K	F7A2-EM12K	≥410	≥500	≥22	≥45(-200°C)

## COPPER ALLOY MIG WIRE

Copper Phosphorus Alloys in a number of different ratios including Cu<sub>94</sub>P<sub>6</sub>, Cu<sub>93</sub>P<sub>7</sub>, Cu<sub>92</sub>P<sub>8</sub> (8.0% Phosphorus for the Aluminum industry, typically containing <0.15% iron), Cu<sub>86</sub>P<sub>14</sub>, and Cu<sub>85</sub>P<sub>15</sub> (15% Phosphorus-Copper for the Copper industry, available in multiple grades). Phosphorus-Copper alloys are available in powders, rods, wires, pastes, rings, and other preformed shapes. We can also produce materials to custom specifications by request.



Corrosion resistance is satisfactory, except when the joints are exposed to sulfurous environments, especially at elevated temperatures.

Phosphorous Copper alloys should not be used on ferrous, nickel based alloys, or copper-nickel alloys with more of 10% nickel, in order to avoid premature failure of the joint due to the formation of brittle inter metallic phases.

Standard	Alloys	Chemical Composition %	Solidus	Liquids	Application
AWS A5.8	BCuP-2	Cu:Bal. P:6.5-7.5	710 °C	790 °C	For brazing of copper and copper alloys.
AWS A5.8	BCuP-3	Cu:Bal. P:5.7-6.1 Ag:5.0-5.2	643 °C	816 °C	For brazing of copper and copper alloys.
AWS A5.8	BCuP-5	Cu:Bal. P:4.8-5.3 Ag:14.5-15.5	643 °C	800 °C	For brazing of copper, copper alloys, silver and molybdenum etc.
AWS A5.8	BCuP-6	Cu:Bal. P:6.8-7.5 Ag:1.8-2.2	643 °C	790 °C	For brazing of copper and copper alloys.
AWS A5.8	BCu86PSn	Cu:Bal. P:6.5-7.5 Sn:6.5-7.5	640 °C	680 °C	For brazing of copper and copper alloys.

### TUNGSTEN ELECTRODE

TOKO Tungsten electrodes are solid rods made from tungsten metal (W) used for arc welding and arc cutting processes such as TIG (tungsten inert gas) welding. Due to their high level of surface stability, tungsten electrodes are often used when higher quality welds are needed. They have low levels of contamination, and their recyclability makes them a popular choice in many welding applications. Tungsten electrodes come in various diameters and types. The three main types of tungsten electrodes are pure tungsten, 2 percent thoriated, and lanthanum. Each type has its own unique characteristics and benefits.



Type	AC/DC	Applications
2% Lanthanated (Blue)	AC/DC	The blue lanthanated electrodes are popular due to the relative ease of striking an arc and lower amperage required. They perform exceptionally well in both AC & DC applications and are a popular general use electrode. Blue electrodes are effective for welding aluminum alloys, magnesium alloys, nickel alloys, copper alloys, titanium alloys, low-alloyed steels, and non-corroding steels.
Thoriated (Red)	DC	The red thoriated type is America's favorite electrode for a reason. Extremely long lasting and highly durable, these electrodes are a staple in DC welding applications. These red electrodes are best for copper alloys, nickel alloys, titanium alloys, and non-corroding steels.
1.5% Lanthanated (Gold)	DC	The gold lanthanated tungsten electrodes contain less lanthanum than their blue counterparts and are best used in DC applications. They are best for welds with titanium alloys, copper alloys, nickel alloys, and non-corroding steel.

Of course, TOKO full range of welding consumables are NOT limited to these. Any question or inquiry please contact us via [office@tokoc.com](mailto:office@tokoc.com) . Looking forward to working together and growing together with you in near future!

## TOKO PRODUCTION BASE



*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and TOKO Corporation expressly disclaims any liability incurred from any reliance thereon. Typical data and Test results for mechanical properties, deposit or electrode composition and other properties were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.*