

# **S-LINE** WIRES & RODS FOR ALUMINIUM & COPPER WELDING





## PRODUCT RANGE

HYUNDAI WELDING is a global manufacturer of welding consumables and equipment. As the top leading manufacturer of welding consumables in Korea, and with a global network of sales, distribution and manufacturing plants, HYUNDAI WELDING has developed into a key player in the international welding industry.

Our company is fully committed to the ever-changing needs of our customers and has evolved in just under 50 years to provide welding expertise and breakthroughs in welding technology. HYUNDAI WELDING understands customer needs and offers customers world-class products and world-class solutions.

### Premium Quality Wires and Rods for Aluminium and Copper Welding

HYUNDAI WELDING offers a new range of Aluminium and Copper based welding consumables for superior quality, arc stability, productivity and weld appearance. Our premium quality wire and rods help to solve problems associated with aluminium and copper welding usually related to feedability, surface finish, surface cleanliness, chemical composition and convenient packaging.

Hyundai Welding can provide solutions to customers all over the world which operate in several industries such as automotive, shipbuilding, and general fabrication which use major grades of aluminium and copper alloys :

Aluminium	
AWS A5.10	EN ISO 18273
ER1070	S Al 1070 (Al99,7)
ER4043A	S Al 4043A / AlSi5(A)
ER4047A	S Al 4047A / AlSi12(A)
ER5554	S Al 5554 / AlMg2,7Mn
ER5754	S Al 5754 / AlMg3
ER5087	S Al 5087 / AlMg4,5MnZr(A)
ER5556	S Al 5556 - AlMg5MnTi(A)
ER5356	S Al 5356 / AlMg5Cr(A)
ER5183	S Al 5183 / AlMg4,5Mn0,7(A)

Copper Alloy	
AWS A5.7	EN ISO 24373
ERCu	S Cu1898A-CuSn1MnSi
ERCuSi-A	S Cu6560-CuSi3Mn1
ERCuSn-A	S Cu5180A-CuSn6P
ERCuAl-A1	S Cu 6100-Cu Al7
ERCuAl-A2	SCu6180-CuAl10Fe
ERCuNiAl *	S Cu6328-CuAl9Ni5Fe3Mn2
ERCuMnNiAl *	S Cu 6338-CuMn13Al8Fe3Ni2

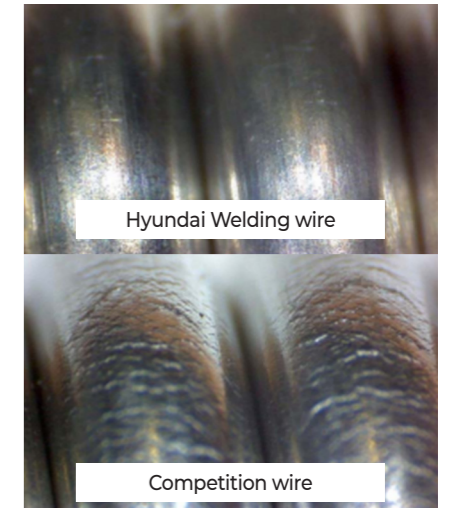
\* No GTAW/TIG Rods



## PRODUCT ADVANTAGES

### Surface Finish & Feedability

The quality of the surface of welding wires is very important for problem-free welding with a high productivity. The amount and structure of the aluminium oxides on the wire surface is essential. A high quality aluminium welding wire has a thin, homogeneous oxide layer that adheres well to the wire surface. With an irregular, non-homogeneous oxide layer, oxide particles are likely to shave off and will gradually clog liner and contact tip. If liners and tips are not renewed frequently, this will sooner or later result in feeding irregularities and arc instability and lead to irregular welds and even to porosity. Hyundai Welding aluminium wires have a perfect surface quality and stand for long periods of problem-free welding and longer intervals between maintenance of the welding equipment.



### Cleanliness of Wire Surface

Another surface quality aspect is the cleanliness of the wire. Contaminants from the wire drawing process on the surface need to be removed meticulously in order not to evaporate during welding and act as a source of porosity and X-Ray test failures.



### Chemical Composition & Mechanical Properties

Tightly controlled chemical composition is the basis for consistent mechanical properties (tensile strength, yield strength and elongation).



### Convenient & Robust Packaging

Next to high quality spools with different aluminium wire contents, HYUNDAI WELDING also offers rigid cardboard drums with a dimension of  $\phi$  520 x 780 mm and a filling content of 80 kg of welding wire. In comparison with e.g. 7 kg spools, the number of stops of a welding station needed for the exchange of empty spools is reduced by more than a factor 10 by using the drums.

Here are the diameters & packaging options

Packaging		Dimensions	
GMAW/MIG Wires	GTAW/TIG Rods	GMAW/MIG Wires mm (in)	GTAW/TIG Rods mm (in)
BS300 Spool : 7kg (15.4lbs) S200 Spool : 2kg (4.4lbs) S100 Spool : 0.5kg (1.1lbs) 520 x 780mm Drum : 80kg (176.4lbs)	Carton Box 5kg (11lbs)	0.8 (0.030)	1.6 (1/16)
		0.9 (0.035)	2.0 (0.078)
		1.0 (0.040)	2.4 (3/32)
		1.2 (0.045)	3.2 (1/8)
		1.6 (1/16)	4.0 (5/32)
			x 1000 (39.4)



INFORMATION FOR ALUMINIUM GMAW/MIG & GTAW/TIG RODS

Product Name	AWS A5.10	EN ISO 18273	Typical Chemical Composition of All-Weld Metal(%)												Materials to be Welded	Application Areas	Approvals *
			Al	Si	Fe	Cu	Mn	Mg	Zn	Cr	Zr	Ti	Be	V			
SMT-1050 (S)	ER1070	S Al 1070 (Al99,7)	<99,70	0,20	0,25	0,04	0,03	0,03	0,04	-	-	0,03	0,0003	0,05	Al99,0 / Al99,5 / Al99,7	Chemistry, electronics, construction and food industries. Metalizing and thermal spray application. Low strength corrosion resistant vessels and tanks	
SMT-4043 (S)	ER4043A	S Al 4043A / AlSi5(A)	Rest	4,5 - 6,0	0,60	0,30	0,15	0,20	0,10	-	-	1,50	0,0003	0,05	Al Si 5 / Al Mg Si 0,5 / Al Mg Si 0,8 / Al Mg Si 1 / Al Zn Mg / Al Cu Mg	Construction, structural, automotive and shipbuilding industries. Production of mobile equipment	DB, TUV, CE
SMT-4047 (S)	ER4047A	S Al 4047 A / AlSi12(A)	Rest	11,0 - 13,0	0,60	0,30	0,15	0,10	0,20	-	-	0,15	0,0003	0,05	G-Al Si 10 Mg / G-Al Si 11 / G-Al Si 12 (Cu) / G-Al Si 7 Mg / G-Al Si 6 Cu 4 / Al Mg Si 0,8 / Al Mg Si 1	Application with elevated temperatures. Radiators and air conditioning. General repair and maintenance	
SMT-5554 (S)	ER5554	S Al 5554 / AlMg2,7Mn	Rest	0,25	0,40	0,10	0,5-1,0	2,40 -3,0	0,25	0,05-0,20	-	0,05 -0,20	0,0003	0,05	Al Mg Mn / Al Mg1 / Al Mg2 / Al Mg2,7 Mn / Al Mg3 / Al Mg Si 0,5 / Al Mg Si 0,8	Railroad cars and automotive industry together with high temperature applications. Over-the-road trailers, rail tank cars and chemical storage tanks	
SMT-5754 (S)	ER5754	S Al 5754 / AlMg3	Rest	0,40	0,40	0,10	0,50	0,30	0,20	2,6 -3,6	-	0,15	0,0003	0,05	Al Mg Mn / Al Mg1 / Al Mg2 / Al Mg 2,7Mn / Al Mg 3 / Al Mg 3,5 / Al Mg Si 0,5 / Al Mg Si 0,8 / G-Al Mg3 Si	Construction, automotive and shipbuilding industries. Resistant to intergranular corrosion and stress corrosion cracking after exposure to elevated temperatures	
SMT-5087 (S)	ER5087	S Al 5087 / AlMg4,5MnZr(A)	Rest	0,25	0,10 - 0,20	0,05	0,70 - 1,10	4,5 - 5,2	0,25	0,05 - 0,25	0,40	0,15	0,0003	0,05	Al Mg 4,5 Mn / Al Zn Mg Cu 1,5 / Al Mg 5 Mn / Al Mg 3 / Al Mg 5 / Al Mg Mn / Al Zn Mg1 / G-Al Mg 3 Si / G-Al Mg 5 Si / G-Al Mg 10 / Al Mg 1 Si Cu / Al Mg Si 0,7	Shipbuilding, offshore, cryogenic storage tanks, railroad cars and automotive industry	
SMT-5556 (S)	ER5556	S Al 5556 - AlMg5MnTi(A)	Rest	<0,25	<0,40	<0,10	0,50 - 1,0	4,7-5,5	-	<0,25	-	-	0,0003	0,05	5XXX Alloys; Al Mg 4,5 Mn / Al Mg 5 / Al Zn 4,5 Mg 1 / Al Mg 5 Mn / Al Mg 2,7 Mn / Al Mg Si 1	Military, structural industry, pressure vessels, construction and storage tank industries	
SMT-5356 (S)	ER5356	S Al 5356 / AlMg5Cr(A)	Rest	0,40	0,25	0,10	0,05 - 0,20	4,5 - 5,5	0,10	0,05 - 0,20	-	0,06 -0,20	0,0003	0,05	Al Mg 3 / Al Mg 5 / Al Mg Mn / Al Zn Mg 1 / G-Al Mg 3 Si / G-Al Mg 5 Si / G-Al Mg 10 / Al Mg 1 Si Cu / Al Mg Si 0,7	Shipbuilding, bicycle/motorcycle, commercial vehicle, pressure vessel, storage tank, railways, automotive industries.	DB, TUV, DNV, CE
SMT-5183 (S)	ER5183	S Al 5183 / AlMg4,5Mn0,7(A)	Rest	0,40	0,40	0,10	0,50 - 1,0	4,3 - 5,2	0,25	0,05 - 0,25	-	0,06 -0,20	0,0003	0,05	Al Mg 4,5 Mn / Al Mg 5 / Al Mg 2 Mn 0,8 / Al Zn Mg 1 / Al Zn Mg Cu 0,5 / Al Mg Si 0,5 / Al Mg Si 1 / G-Al Mg 10 / G-Al Mg 5 / G-Al Mg 3 Si / G-Al Mg 5 Si	Railroad cars, commercial vehicle, pressure vessels, marine components, drilling rigs and cryogenics storage tanks	DB, TUV, DNV, CE

\* More approvals available upon request.

INFORMATION FOR COPPER ALLOY GMAW/MIG WIRES & GTAW/TIG RODS

Product Name	AWS A5.7	EN ISO 24373	Typical Chemical Composition of All-Weld Metal(%)											Application Areas
			Al	Si	Fe	Cu	Mn	Ni	Pb	Sn	P	Zn		
SMT-Cu (S)	ERCu	S Cu1898A-CuSn1MnSi	0,1 - 0,4	0,01	0,03	Rest	0,1 - 0,4	0,10	0,01	0,5 - 1,0	0,02	-	Used to surface, build up, and fabricate electrolytic tough pitch and oxygen-free copper. To overlay steel to join heavier section of copper to steel	
SMT-CuSi A (S)	ERCuSi-A	S Cu6560-CuSi3Mn1	0,02	2,8 - 4,0	0,50	Rest	0,5 - 1,5	-	0,02	0,20	0,05	0,40	Bronze impellers, bronze wear plates, hydraulic piston overlays, track wheels, gears, sprockets, farm implements and fixing in artistic foundries,	
SMT-CuSn A (S)	ERCuSn-A	S Cu5180A-CuSn6P	0,01	-	0,10	Rest	-	-	0,02	4,0 - 7,0	0,01 - 0,4	0,10	Fixing worn surfaces with similar basis metals. Welding of copper with Cu-Sn alloy. Good for butt joining welding of brass with steel	
SMT-CuAl Al (S)	ERCuAl-Al	S Cu 6100-Cu Al7	6,0 - 8,5	0,20	-	Rest	-	-	0,02	-	-	0,20	Propellers, pumps, shafts and valves for shipbuilding industry. Valves, sleeves, pipes, heat exchangers, gear housings for chemical industry. Welding and coating of aluminium-bronze with steel basis.	
SMT-CuAl A2 (S)	ERCuAl-A2	SCu6180-CuAl10Fe	8,5 - 11,0	0,10	1,50	Rest	-	-	0,02	-	-	0,02	Widely used for shipbuilding, apparatus and plumbing which is suitable for parts which can undergo seawater corrosion. Also used for joining dissimilar alloys such as copper and steel, cast iron, bronze	
SMT-CuNiAl (S) *	ERCuNiAl	S Cu6328-CuAl9Ni5Fe3Mn2	8,5 - 9,5	0,10	3,0-5,0	Rest	0,6-3,5	4,0-5,5	0,02	-	-	0,10	Propeller, valves, pumps, and pipe systems for shipbuilding, Power and chemical plant components which requires weld alloy with excellent corrosion and wear resistance characteristics. Surfacing on steel or bronze	
SMT-CuMnNiAl (S) *	ERCuMnNiAl	S Cu 6338-CuMn13Al8Fe3Ni2	7,0 - 8,5	0,10	2,0-4,0	Rest	11,0-14,0	1,5-3,0	0,02	-	-	0,15	Joining or fixing cast metals. Joining or surfacing copper alloys of unalloyed and low alloy steel as well as grey cast iron. Used in marine, power and chemical plants such as propellers, pumps and seawater devices.	

\* No TIG Rods



## Passenger Vehicles



### RADIATOR

SMT-4043 (S)  
SMT-4047 (S)



### FRAME ASSEMBLY

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5554 (S)  
SMT-CuSi A (S)



### BODY PANEL

SMT-5183 (S)  
SMT-Cu (S)  
SMT-CuSi A (S)



### SUSPENSION COMPONENTS

SMT-5356 (S)



### EV BATTERY TRAY

SMT-5183 (S)  
SMT-4043 (S)



### DOOR MODULE

SMT-5183 (S)  
SMT-4043 (S)



### BUMPER REINFORCEMENT

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5087 (S)  
SMT-CuAl A1 (S)



### AXLE HOUSING

SMT-5554 (S)



### BRAKE DRUM

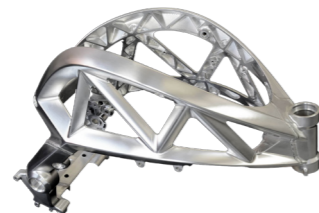
SMT-CuAl A2 (S)

## Bicycles and Motorcycles



### BICYCLE FRAME

SMT-5087 (S)  
SMT-4043 (S)



### MOTORCYCLE FRAME

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)



### MOTORCYCLE FUEL TANK

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)

## Railway Vehicles



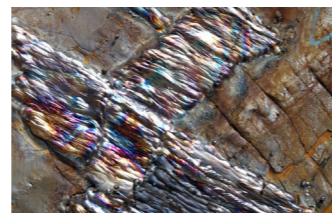
### BODY OF RAILWAY VEHICLE

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5087 (S)



### OVERLAY WELDING

SMT-CuMnNiAl (S)



### HARDFACING

SMT-CuAl A1 (S)  
SMT-CuAl A2 (S)  
SMT-CuSi A (S)  
SMT-CuSn A (S)

## Trailers & Commercial Vehicles



### DIESEL FUEL TANK

SMT-5183 (S)



### TRAILER FRAME

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)



### COVERAGE AND BOXES FOR TRUCKS

SMT-5356 (S)  
SMT-4043 (S)



### FUEL TRUCK

SMT-5183 (S)  
SMT-5554 (S)  
SMT-5754 (S)  
SMT-5087 (S)

## Shipbuilding



### SILO TRAILER

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)



### AIR STORAGE TANK

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5087 (S)



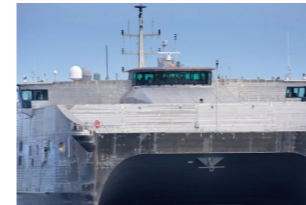
### LNG CARRIER (MOSS & SBP TYPE)

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5556 (S)



### ALUMINIUM BOAT & YACHT

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5556 (S)



### ALUMINIUM SEA & NAVAL VESSELS

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5556 (S)



### SHIP PROPELLER

SMT-CuSi A (S)  
SMT-CuNiAl (S)  
SMT-CuMnNiAl (S)



### VALVES, PIPES & PUMPS

SMT-CuNiAl (S)



### DESANITATION EQUIPMENT

SMT-CuNiAl (S)

## General Fabrication



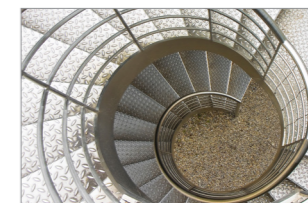
### CONTAINER

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)



### ALUMINIUM SILOS

SMT-5183 (S)  
SMT-5356 (S)  
SMT-5087 (S)  
SMT-5754 (S)



### STAIRCASES & GANGWAYS

SMT-5183 (S)  
SMT-5356 (S)  
SMT-4043 (S)

**HYUNDAI WELDING** is a world-class manufacturer that specializes in providing optimum welding solutions to its customers, by supplying top-notch welding consumables and equipment. **HYUNDAI WELDING** has contributed to the development and success of the global welding industry for almost 50 years since its foundation in 1975.

For more information on **HYUNDAI WELDING**, please visit [www.hyundaiwelding.com](http://www.hyundaiwelding.com)



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