



*MIG Wires and
TIG Rods for
Welding of
Stainless Steels*

*MIG Wires and
TIG Rods for
Welding of
Aluminium Alloys*

*Flux and Metal
Cored Wires for
Welding of
Un-Alloy Steels
and Hardfacing*

*Carbon Arc Electrodes
for Cutting and Gouging*

*Tungsten Electrodes
for TIG Welding*

Starweld®

CERTIFICATE **TÜV NORD**

Management system as per
DIN EN ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that



Kaynak Tekniği Sanayi ve Ticaret A.Ş.
Taysad Org. San. Bölğ., 2. Cad., No 5, Şekerpınar, Çayırova,
TR-41435 Kocaeli,
Turkey

applies a management system in line with the above standard for the following scope

Design, production, marketing, sales, consultancy and after sales services for arc welding consumables of trademarks Askaynak, Kobatek, Expressweld and Bonusweld, for welding equipment with trademark Expressweld; marketing, sales, consultancy and after sales services for welding consumables and equipment for trademarks Lincoln Electric and Starweld

Certificate Registration No. 44 100 073552
Audit Report No. TR 037

Valid until 2013-05-13
Initial certification 1995

Certification Body
at TÜV NORD CERT GmbH

Istanbul, 2010-05-14

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH

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TGA-ZM-07-06-00

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Company Profile



Specializing in the manufacturing of covered electrodes, Kaynak Tekniđi Sanayi ve Ticaret A.Ş. was founded on March 1, 1974. With the onset of the 1980s, the company started manufacturing MIG/MAG welding wires. In 1982, Kaynak Tekniđi became the Turkish distributor of the USA based "The Lincoln Electric Company", headquartered in Cleveland, Ohio, and a leader in the manufacturing of welding equipment. On May 5, 1998 a fifty-fifty partnership was established with The Lincoln Electric Company. As a result of this joint venture, an important step to expand the company's market share and exports to Europe, Russia, Africa and The Middle East was established.

The Lincoln Electric Co., the foreign partner of the joint venture, is one of the leading company worldwide specializing in the manufacturing of welding consumable products, welding equipment, welding generators, robotic automation and plasma cutting equipment. The company has joint ventures in 18 countries and a worldwide network of distributors and sales offices in approximately 160 countries. Under the brand "Askaynak", Kaynak Tekniđi manufactures welding electrodes and welding wires primarily used by the welding manufacturing industry, while the "Kobatek" brand of products were developed to be primarily utilized during welding repair and maintenance processes. Additionally, Kaynak Tekniđi distributes the "Lincoln Electric" brand of welding electrodes, welding wires, welding equipment, etc. of its partner The Lincoln Electric Company throughout Turkey. In the 2000s, Kaynak Tekniđi registered its brand "Starweld" which includes stainless steel and aluminum MIG and TIG welding wires and flux-cored welding wires. The "Expressweld" brand of welding equipment is another significant product line sold under the Kaynak Tekniđi umbrella. Besides the welding equipment and consumable products available within the "Askaynak" brand abrasives and "Harris" gas equipments are also offered.

As a result of the rising market conditions and rapid growth in sales, Kaynak Tekniđi moved from its plant located in the district of Kartal in Istanbul since 1974 to its new and modern manufacturing facility in Kocaeli in 2007. Located in the district of ayirova, within the borders of the Municipality of Őekerpınar, the manufacturing facility and headquarters is located on 40,000 square meters of land with an indoor area of 22,000 square meters. In operation since 1974, Kaynak Tekniđi has a capacity to produce 36,000 tons of covered electrodes, 24,000 tons of flux-cored welding wires, 5,000 tons of submerged arc welding wires and 1,500 tons of TIG welding wires on an annual basis. The company has a total of 4 sales offices in Istanbul, Ankara, Izmir and Adana, employs approximately 300 people and has about 800 authorized dealers throughout Turkey.

Kaynak Tekniđi maintains a strong presence in the Turkish market and all products manufactured and introduced to its targeted audience are recognized for their superior quality. Additionally, the company continues to increase its export capacity each year: in 2010, sales were realized in over 40 countries worldwide. The major fundamental principle at Kaynak Tekniđi is to attain a high level of customer satisfaction. As a result, the company strives to ensure that the demands of the market are met and is committed to offering top quality products and services to all customers. In 1995, Kaynak Tekniđi was the first welding company to receive the "ISO 9001 Quality Management System" Certificate in Turkey. Further, Kaynak Tekniđi has received Lloyd certification from American Bureau of Shipping (ABS), Bureau Veritas (BV), Lloyd Register of Shipping (LRS), Germanischer Lloyd (GL), Det Norske Veritas (DNV), Trk Loydu (TL), Russian Maritime Register of Shipping (RMRS) and Registro Italiano Navale (RINA). Additionally, the company's products have been approved by leading certification organizations to include TSE, TV, DB, GOST, NAKS, and SEPRO. Finally, Kaynak Tekniđi Sanayi ve Ticaret A.Ş. is the first welding company to receive the "CE" certificate in Turkey.

In 1999, Kaynak Tekniđi received the "Top Quality Award" in the category of small and mid-sized companies awarded in partnership with TSIAD (Turkish Industrialists and Businessmen's Association) and KalDer (Turkish Society for Quality) once again confirming the company's commitment for providing superior quality products and services.

 Eczacıbaşı

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MIG Wires and TIG Rods - Flux and Metal Cored Wires Carbon Arc Electrodes - Tungsten Electrodes for TIG Welding

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Starweld

Starweld MIG MW-307Si

MIG Wire for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ~ ER307
ISO 14343-A : ~ G 18 8 Mn

General Description

Solid wire with 7% Mn for welding steels with difficult weldability such as armour plates and austenitic high Mn-steels.
Often used as a buffer layer in hardfacing applications.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	P+S
0.08	0.80	7	19	9	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 420 N/mm²
Tensile Strength : 620 N/mm²
Elongation (L=5d) : 40 %
Impact ISO-V : 80 J (+20°C)

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : M13 - Ar + %0-5 O₂
M12 - Ar + %0-3 CO₂

Materials to be Welded

Various steel grades such as; armour plates, hardenable steels including steels difficult to weld, non-magnetic steels, work hardening austenitic manganese steels and dissimilar joints (CMn-steels to stainless steels).

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Spool Weight
MIG Wire	-	-	X	-	-	-	-	12.5 kg

Liability : All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance. **Fumes** : Consult information on Welding Safety Sheet, available upon request.

Starweld MIG MW-308LSi

MIG Wire for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER308LSi
ISO 14343-A : G 19 9 LSi

General Description

Solid wire with extra low carbon for welding austenitic CrNi-steels.
With increased silicon for improved wettability.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.85	1.70	20	10	0.15	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 390 N/mm²
Tensile Strength : 590 N/mm²
Elongation (L=5d) : 40 %
Impact ISO-V : 120 J (+20°C)

Approvals

ABS (ER308LSi)
GOST, SEPRO

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : M13 - Ar + %0-5 O₂
M12 - Ar + %0-3 CO₂

Materials to be Welded

	EN 10088-1/-2	EN 10213-4	Mat. Nr.
Extra Low Carbon (C < %0.03)	X2 CrNi 19 11		1.4306
	X2 CrNiN 18 10		1.4311
Medium Carbon (C > %0.03)	X4 CrNi 18 10		1.4301
		G-X5 CrNi 19 10	1.4308
Ti/Nb Stabilized	X6 CrNiTi 18 10		1.4541
	X6 CrNiNb 18 10		1.4550
		G-X5 CrNiNb 19 10	1.4552

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Spool Weight
MIG Wire	X	X	X	-	-	-	-	12.5 kg

Starweld MIG MW-309LSi

MIG Wire for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER309LSi
ISO 14343-A : G 23 12 LSi

General Description

Solid wire for welding stainless steel to carbon steel.
With increased silicon for improved wettability.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.85	1.70	24	13	0.15	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 420 N/mm²
Tensile Strength : 600 N/mm²
Elongation (L=5d) : 35 %
Impact ISO-V : 120 J (+20°C)

Approvals

GOST

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : M13 - Ar + %0-5 O₂
M12 - Ar + %0-3 CO₂

Materials to be Welded

	EN 10088-1/-2	Mat. Nr.
Corrosion resistant cladsteels	X2 CrNiN 18 10	1.4311
	X2 CrNi 19 11	1.4306
	X4 CrNi 18 10	1.4301

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Spool Weight
MIG Wire	X	X	X	-	-	-	-	12.5 kg

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Starweld MIG MW-316LSi

MIG Wire for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER316LSi
ISO 14343-A : G 19 12 3 LSi

General Description

Solid wire with extra low carbon for welding austenitic CrNiMo-steels.
With increased silicon for improved wettability.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.85	1.70	18.5	12.5	2.75	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 410 N/mm²
Tensile Strength : 640 N/mm²
Elongation (L=5d) : 35 %
Impact ISO-V : 150 J (+20°C)

Approvals

ABS (ER316LSi)
GOST, SEPRO

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : M13 - Ar + %0-5 O₂
M12 - Ar + %0-3 CO₂

Materials to be Welded

	EN 10088-1/-2	EN 10213-4	Mat. Nr.
Extra Low Carbon (C < %0.03)	X2 CrNiMo 17 12 2		1.4404
	X2 CrNiMo 18 14 3		1.4435
	X2 CrNiMoN 17 11 2		1.4406
	X2 CrNiMoN 17 13 3		1.4429
Medium Carbon (C > %0.03)	X4 CrNiMo 17 12 2		1.4401
	X4 CrNiMo 17 13 3		1.4436
		G-X5 CrNiMo 19 11	1.4408
Ti/Nb Stabilized	X6 CrNiMoTi 17 12 2		1.4571
	X6 CrNiMoNb 17 12 2		1.4580
	X6 CrNiNb 18 10		1.4550
		G-X5 CrNiNb 19 10	1.4552

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Spool Weight
MIG Wire	X	X	X	-	-	-	-	12.5 kg

Starweld TIG TW-308L

TIG Rod for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER308L
ISO 14343-A : W 19 9 L

General Description

Solid rod with extra low carbon for welding austenitic CrNi-steels.
High resistance to intergranular corrosion and oxidizing environments.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.45	1.70	20	10	0.15	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 380 N/mm²
Tensile Strength : 570 N/mm²
Elongation (L=5d) : 40 %
Impact ISO-V : 100 J (+20°C)

Approvals

ABS (ER308L)
GOST, SEPRO

Shielding Gases (acc. ISO 14175 and EN 439)

TIG : I1 - Ar (%100)

Materials to be Welded

	EN 10088-1/-2	EN 10213-4	Mat. Nr.
Extra Low Carbon (C < %0.03)	X2 CrNi 19 11		1.4306
	X2 CrNiN 18 10		1.4311
Medium Carbon (C > %0.03)	X4 CrNi 18 10		1.4301
		G-X5 CrNi 19 10	1.4308
Ti/Nb Stabilized	X6 CrNiTi 18 10		1.4541
	X6 CrNiNb 18 10		1.4550
		G-X5 CrNiNb 19 10	1.4552

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Tube Weight
TIG Rod	-	-	-	X	X	X	X	5 kg

Liability : All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance. **Fumes** : Consult information on Welding Safety Sheet, available upon request.

Starweld TIG TW-309L

TIG Rod for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER309L
ISO 14343-A : W 23 12 L

General Description

Solid rod for welding stainless steel to carbon steel.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.45	1.70	24	13	0.15	< 0.035

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 410 N/mm²
Tensile Strength : 590 N/mm²
Elongation (L=5d) : 35 %
Impact ISO-V : 100 J (+20°C)

Approvals

GOST

Shielding Gases (acc. ISO 14175 and EN 439)

TIG : I1 - Ar (%100)

Materials to be Welded

	EN 10088-1/-2	Mat. Nr.
Corrosion resistant cladsteels	X2 CrNiN 18 10	1.4311
	X2 CrNi 19 11	1.4306
	X4 CrNi 18 10	1.4301

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Tube Weight
TIG Rod	-	-	-	X	X	X	X	5 kg

Starweld TIG TW-316L

TIG Rod for Welding of Austenitic Stainless Steels

Classification

AWS A5.9 : ER316L
ISO 14343-A : W 19 12 3 L

General Description

Solid rod with extra low carbon for welding austenitic CrNiMo-steels.
High resistance to intergranular corrosion and general corrosion conditions.

Chemical Composition (w%), Typical, Wire

C	Si	Mn	Cr	Ni	Mo	P+S
< 0.03	0.45	1.70	18	12	2.50	< 0.060

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 400 N/mm²
Tensile Strength : 620 N/mm²
Elongation (L=5d) : 35 %
Impact ISO-V : 100 J (+20°C)

Approvals

ABS (ER316L)
GOST, SEPRO

Shielding Gases (acc. ISO 14175 and EN 439)

TIG : I1 - Ar (%100)

Materials to be Welded

	EN 10088-1/-2	EN 10213-4	Mat. Nr.
Extra Low Carbon (C < %0.03)	X2 CrNiMo 17 12 2		1.4404
	X2 CrNiMo 18 14 3		1.4435
	X2 CrNiMoN 17 11 2		1.4406
	X2 CrNiMoN 17 13 3		1.4429
Medium Carbon (C > %0.03)	X4 CrNiMo 17 12 2		1.4401
	X4 CrNiMo 17 13 3		1.4436
		G-X5 CrNiMo 19 11	1.4408
Ti/Nb Stabilized	X6 CrNiMoTi 17 12 2		1.4571
	X6 CrNiMoNb 17 12 2		1.4580
	X6 CrNiNb 18 10		1.4550
		G-X5 CrNiNb 19 10	1.4552

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	Tube Weight
TIG Rod	-	-	-	X	X	X	X	5 kg

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Starweld MIG AISi5 / TIG AISi5

MIG Wire and TIG Rod for Welding of Aluminium Alloys

Classification

AWS A5.10 : ER4043
ISO 18273 : S Al 4043A / AISi5(AI)

General Description

Solid wire and rod for welding of aluminium-silicium alloys.

Chemical Composition (w%), Typical, Wire

Si	Mn	Fe	Cu	Zn	Ti	Al
4.5 - 5.5	< 0.05	< 0.50	< 0.30	< 0.10	< 0.01	kalan

Mechanical Properties, Typical, All Weld Metal

Yield Strength	: 100 N/mm ²	Melting Range	: 575 - 625 °C
Tensile Strength	: 160 N/mm ²	Density	: 2.68 gr/cm ³
Elongation (L=5d)	: 15 %		
Impact ISO-V	: 20 J (+20°C)		

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : I1 - Ar (%100)
TIG : I1 - Ar (%100)

Materials to be Welded

	DIN 1725-1	DIN 1725-2	Mat. Nr.	Alloy Nr.
Aluminium Wrought Alloys	AlMgSi 0.5		3.3206	6060
	AlMgSi 0.7		3.3210	6005A
	AlMgSi 0.8		3.2316	6181
Aluminium Cast Alloys		G-AISI 5		443.0

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	4.0	Spool/Tube Weight
MIG Wire	-	X	X	-	-	-	-	-	7 kg
TIG Rod	-	-	-	-	X	X	-	X	5 kg

Starweld MIG AISi12 / TIG AISi12

MIG Wire and TIG Rod for Welding of Aluminium Alloys

Classification

AWS A5.10 : ER4047
ISO 18273 : S Al 4047A / AISi12(Al)

General Description

Solid wire and rod for welding of cast aluminium alloys containing up to 12% silicium.

Chemical Composition (w%), Typical, Wire

Si	Mn	Fe	Cu	Zn	Ti	Al
11.5 - 12.5	< 0.15	< 0.50	< 0.30	< 0.20	< 0.01	kalan

Mechanical Properties, Typical, All Weld Metal

Yield Strength	: 80 N/mm ²	Melting Range	: 575 - 585 °C
Tensile Strength	: 180 N/mm ²	Density	: 2.65 gr/cm ³
Elongation (L=5d)	: 5 %		

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : I1 - Ar (%100)
TIG : I1 - Ar (%100)

Materials to be Welded

	DIN 1725-1	DIN 1725-2	Mat. Nr.	Alloy Nr.
Aluminium Cast Alloys		G-AISI 12	3.3581	A413.0
		G-AISI 12 (Cu)	3.3583	
		G-AISI 10 Mg	3.2381	361.0
		G-AISI 10 Mg (Cu)	3.2383	
		G-AISI 9 Mg	3.2373	359.0
		G-AISI 9 Cu 3	3.2161	
		G-AISI 7 Mg	3.2171	356.0
		G-AISI 6 Cu 4	3.2151	319.0

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	4.0	Spool/Tube Weight
MIG Wire	-	X	X	-	-	-	-	-	7 kg
TIG Rod	-	-	-	-	X	-	X	-	5 kg

Liability : All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance. **Fumes** : Consult information on Welding Safety Sheet, available upon request.

Starweld MIG AlMg5 / TIG AlMg5

MIG Wire and TIG Rod for Welding of Aluminium Alloys

Classification

AWS A5.10 : ER5356
ISO 18273 : S Al 5356 / AlMg5

General Description

Solid wire and rod for welding of aluminium alloys containing more than 3% magnesium.

Chemical Composition (w%), Typical, Wire

Si	Mg	Mn	Fe	Cr	Cu	Zn	Ti	Al
0.15	4.5 - 5.5	< 0.20	< 0.40	< 0.15	< 0.10	< 0.10	< 0.06	kalan

Mechanical Properties, Typical, All Weld Metal

Yield Strength	: 130 N/mm ²	Melting Range	: 565 - 635 °C
Tensile Strength	: 280 N/mm ²	Density	: 2.65 gr/cm ³
Elongation (L=5d)	: 25 %		

Shielding Gases (acc. ISO 14175 and EN 439)

MIG : I1 - Ar (%100)
TIG : I1 - Ar (%100)

Materials to be Welded

Aluminium Wrought Alloys

DIN 1725-1	Mat. Nr.	Alloy Nr.
AlMg 3	3.3535	5754
AlMg 4.5	3.3345	5082
AlMg 5	3.3555	5056A
AlMg 2 Mn 0.8	3.3527	5049
AlMg 2.7 Mn	3.3537	5454
AlMg 4 Mn	3.3545	5086
AlZn 4.5 Mg 1	3.4335	7020

Aluminium Cast Alloys

DIN 1725-2	Mat. Nr.	Alloy Nr.
G-AlMg 3	3.3541	
G-AlMg 3 Si	3.3241	512.0
G-AlMg 5	3.3561	B535.0
G-AlMg 5 Si	3.3261	

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	3.2	4.0	Spool/Tube Weight
MIG Wire	-	X	X	-	-	-	-	-	7 kg
TIG Rod	-	-	-	-	X	X	-	-	5 kg

Starweld SW T-365

Flux-Cored Wires for Hardfacing Applications

General Description

All purpose alloy, rebuilding and joining of carbon and 14% manganese steels, buffer and multi-pass layers prior to hardfacing applications. Particularly designed for overlaying parts subjected to high impact and pressure conditions, in particular where rock crushing actions are present.

Starweld SW T-365 generates very tough and crack-resistant weld metals. Shock impacts result in superficial work hardening. The weld metal is characterized by its good compability with all weldable steels.

Weld metal is not suited for flame-cutting but is machinable with cutting tools.

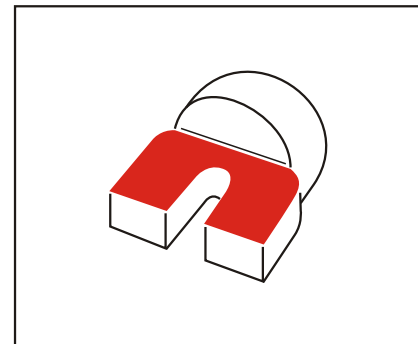
Pressure	██████████	██████████	██████████	██████████
Impact	██████████	██████████	██████████	██████████
Abrasion	██████████	██████████	██████████	██████████
Temperature	██████████	██████████	██████████	██████████
Erosion	██████████	██████████	██████████	██████████

Mechanical Properties, All Weld Metal

Tensile Strength : 760 - 820 N/mm²
 Elongation (L=5d) : 25 - 30 %
 Hardness : 200 - 260 HB (as welded)
 450 - 550 HB (after work hardening)
 Impact ISO-V : 80 Joule (+20°C)

Application Areas

- Crane rollers
- Crusher cylinders
- Coupling rolling mill extensions
- Mill shaft drive ends
- Repointing of shovel teeth
- Railway rails and crossovers
- Hammers
- Beating arms



Coupling Rolling Mill Extensions

Welding Parameters / Packaging and Available Sizes

Current Type and Polarity : DC(+)

Diameter (mm)	Current (Amper)	Stick-Out (mm)	Spool Weight (kg)
2,80	250 - 425	35 - 50	15

Liability : All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance. **Fumes** : Consult information on Welding Safety Sheet, available upon request.

Starweld SW T-570

Flux-Cored Wires for Hardfacing Applications

General Description

Cr-Nb alloy designed to resist high stress grinding abrasion at service temperatures up to 450°C. It generates high wear-resistant, primary carbide-containing weld metal that is extremely resistant to abrasion due to the finely disperse separation of very hard niobium carbides.

Perfectly suited for hardfacing of parts subjected to extreme abrasion and average shock loads.

The weld metal cannot be subjected to flame cutting, offers good resistance to scaling and cannot be machined. The deposit will readily stress relief check cracks.

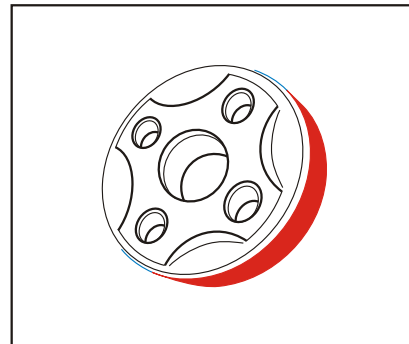
Pressure	■			
Impact	■			
Abrasion	■	■	■	■
Temperature	■	■		
Corrosion	■			

Mechanical Properties, All Weld Metal

Hardness : 60 - 64 HRC (pure weld metal)
57 - 61 HRC (1st layer)

Application Areas

- Crusher jaws
- Mixer blades
- Pump impellers
- Mould screws
- Dredging bucked front edges
- Sand slingers
- Top coats of dredger teeth and crusher rolls
- Wear plates
- Crusher hammer discs
- Excavators



Crusher Hammer Discs

Welding Parameters / Packaging and Available Sizes

Current Type and Polarity : DC(+)

Diameter (mm)	Current (Amper)	Stick-Out (mm)	Spool Weight (kg)
2,80	270 - 420	30 - 55	15

Starweld SW T-580

Flux-Cored Wires for Hardfacing Applications

General Description

Starweld SW T-580 generates high wear-resistant, primary carbide-containing weld metal. Perfectly suited for hardfacing of parts subjected to strong abrasion and medium shock loads. Application temperature should not exceed 350°C.

The weld metal cannot be subjected to flame cutting and cannot be machined. The deposit will readily stress relief check cracks.

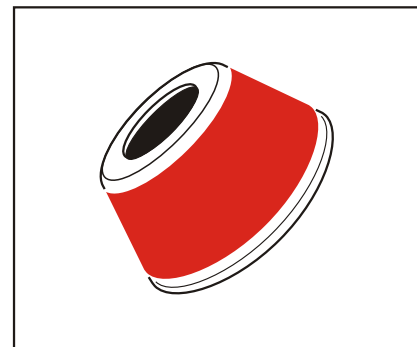
Pressure	██████████	██████████	██████████	██████████
Impact	██████████	██████████	██████████	██████████
Abrasion	██████████	██████████	██████████	██████████
Temperature	██████████	██████████	██████████	██████████
Erosion	██████████	██████████	██████████	██████████

Mechanical Properties, All Weld Metal

Hardness : 60 - 63 HRC (pure weld metal)
 56 - 60 HRC (1st layer)
 58 - 62 HRC (2nd layer)

Application Areas

- Screws
- Dredging bucket front edges
- Stirrer blades
- Sand slingers
- Top coats on dredger teeth and crushing rolls
- Refurbishment of Ni-Hard coal pulverizing rollers
- Handling sand



Conical Crushers

Welding Parameters / Packaging and Available Sizes

Current Type and Polarity : DC(+)

Diameter (mm)	Current (Amper)	Stick-Out (mm)	Spool Weight (kg)
2,80	270 - 420	30 - 55	15

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Flux Cored Welding Wire for Welding of Un-Alloy Steels

Classification

AWS A5.20 : E71T-1H8
EN ISO 17632-A : T42 2 PC 2 H10

General Description

All position gas shielded flux cored wire for high quality welding.
Excellent operator appeal due to superior welding characteristics.
Specially developed for welding with 100% CO₂. Also suitable for welding on coated plate with use of 100% CO₂.
Smooth arc with low spatter.
Good mechanical properties.
Excellent wire feeding.

Chemical Composition (w%), Typical, All Weld Metal

C	Si	Mn	P	S
0.05	0.50	1.50	< 0.015	< 0.015

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 525 N/mm²
Tensile Strength : 597 N/mm²
Elongation (L=5d) : 28 %
Impact ISO-V : 106 J (-20°C)

Approvals

ABS	RINA	SEPRO
E71T-1H8	3Y S H10	+

Shielding Gases (acc. ISO 14175 and EN 439)

Shielding Gases (acc. ISO 14175 and EN 439)	Amount	Current Type
MAG : C1 - CO ₂ (%100)	15 - 25 l/min	DC(+)

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	2.8	Spool Weight
Flux Cored Wire	-	-	X	-	-	-	-	15 kg

Flux Cored Welding Wire for Welding of Un-Alloy Steels

Materials to be Welded

General Structural Steel	: S185, S235, S275
Ship Plates	: Grade A, B, D, AH32 - EH36
Cast Steel	: GP240R
Pipe Material	: X42, X46, X52
Boiler & Pressure Vessel Steel	: P235GH, P265GH, P295GH, P355GH P275N/NH, P355N/NH
Fine Grained Steel	: S275, S355, S420 S275M, S275ML, S355M, S355ML, S420M, S420ML

Metal Cored Welding Wire for Welding of Un-Alloy Steels

Classification

AWS A5.18 : E70C-6 H8
 EN ISO 17632-A : T 42 3 M M 2 H8

General Description

All position and high efficiency (97%) gas shielded metal cored wire for high quality welding.
 Excellent arc characteristics give outstanding operator appeal.
 Suitable for welding with Ar-CO₂ mix gas. Also suitable for automatic welding application.
 Smooth arc with virtually no spatter.
 Superior on scaly plate, good resistance to porosity.
 Good mechanical properties.
 Fast travel speed, excellent wire feeding.

Chemical Composition (w%), Typical, All Weld Metal

C	Si	Mn	P	S
0.05	0.65	1.50	< 0.01	< 0.02

Mechanical Properties, Typical, All Weld Metal

Yield Strength : 470 N/mm²
 Tensile Strength : 590 N/mm²
 Impact ISO-V : 85 J (-20°C)
 60 J (-30°C)

Approvals

ABS

+

Shielding Gases (acc. ISO 14175 and EN 439)

Amount

Current Type

MIG : M21 - Ar + %5-25 CO₂ 15 - 25 l/min DC(+)

Packaging and Available Sizes

Diameter	0.8	1.0	1.2	1.6	2.0	2.4	2.8	Spool Weight
Metal Cored Wire	-	-	X	-	-	-	-	15 kg

Metal Cored Welding Wire for Welding of Un-Alloy Steels

Materials to be Welded

General Structural Steel	: S185, S235, S275, S355
Ship Plates	: Grade A, B, D, AH32 - EH36
Cast Steel	: G P 240R
Pipe Material	: L210, L240, L290, L360 L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB X42, X46, X52 P235T1, P235T2, P275T1 P275T2, P355N
Boiler & Pressure Vessel Steel	: P235GH, P265GH, P295GH, P355GH
Fine Grained Steel	: S275, S355, S420 S275M, S275ML, S355M, S355ML, S420M, S420ML

Starweld KARBON

Carbon Arc Electrode for Cutting and Gouging

General Description

Arc carbon cutting process is based on the integral function of electric arc and pressurized air using in cutting process. The metal that is molten by electric arc, is removed by the air jet. The tip of the arc cutting torch, is suitable for every cutting / gouging positions and supported by special nozzle that directs to air-jet. This process uses carbon, pressurized air and electric current to cut or gouge the metals and has many advantages over the conventional cutting processes like oxy-fuel or saw blade cutting.

Advantages:

- High speed gouging and metal removals,
- Easy usage,
- Cleaner and more comfortable working environment than other ones,
- Enables to work with different materials like mild and stainless steels, cast irons, copper and light alloys,
- No risk of explosion.

How to Use the Carbon Arc Cutting Electrodes?

- Connect the electrode with the DC (+) current to the work piece,
- Connect the air-jet apparatus to the electrode holder,
- Keep the distance between electrode and work pieces about 150 mm. Consider the type of current (DC or AC), diameter of the electrode, amount of current and other parameters like material type,
- Turn the air-jet valve on,
- Establish the arc between electrode and work piece. Arc distance must be kept around 1 to 5 mm (very short),
- To remove the metal, that is cut or gouge, bend the electrode about 30° (maximum current limit must not be exceeded).

Approvals

SEPRO

+

Application Areas

Foundries:

To remove and gouge of the risers and runners of the mild / alloyed steel and iron castings.

Steel Industries :

Removing of the slag inclusions on the alloyed non-alloyed steel billet and slabs, blooms, surface cleaning of the faulty weld beads.

Manufacturing of the Pressure-Vessel, Ship and Steel Constructions:

The surface cleaning of the rear side of the double sided welding applications before the process removing of the miswelded parts, weld beads from the process region and cutting the alloyed steel work pieces.

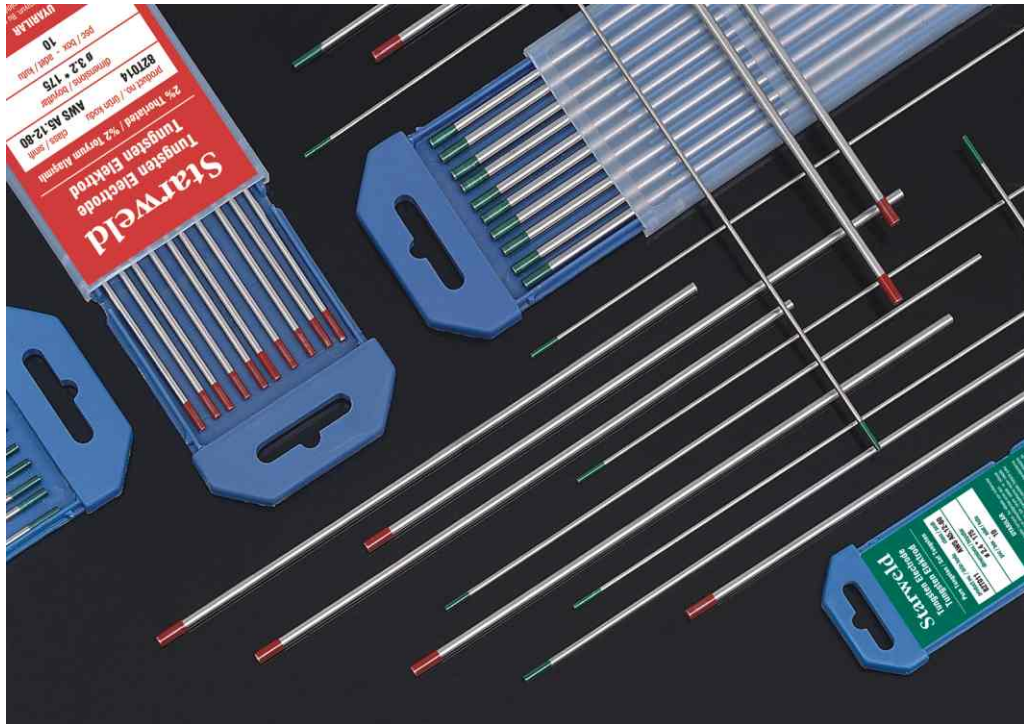
Repair and Maintenance Factories:

Pipe, metal sheets cutting and maintenance of the cast pieces.

Carbon Cutting Parameters / Packaging and Available Sizes

Diameter [mm]	Length [mm]	Current [Amp]	Voltage [V]	Electrode Weight [gr/100 pcs]	Packaging [pcs/box]
6.4	305	150 - 350	41 - 43	2000	50
8.0	305	200 - 450	44 - 48	2600	50
10.0	305	300 - 550	46 - 50	4600	50

Starweld Tungsten TIG Electrodes



Pure Tungsten (Color Code: GREEN) : AWS A5.12 : EWP

Pure tungsten electrodes have an AWS (American Welding Society) classification of EWP and typically are less expensive than their “alloyed” counterparts. They contain 99.50% tungsten and have the highest consumption rate of all electrodes, and provide a clean, balled tip when heated. This shape offers especially good arc stability for AC welding with a balanced waveform. Pure tungsten electrodes also provide good arc stability for AC sine wave welding on aluminum and magnesium. They are not, however, used for DC welding.

2 % Thoriated (Color Code: RED) : AWS A5.12 : EWTh-2

Preferred for their longevity and ease of use, 2% thoriated tungsten electrodes are the most commonly used electrodes today. They contain a minimum of 97.30% tungsten and 1.70% to 2.20% thorium, and they have an AWS classification of EWTh-2.

These electrodes offer good arc starts and provide a higher current-carrying capacity than many other types. 2% thoriated tungsten also operates far below its melting temperature, which results in a considerably lower rate of consumption, minimizes arc wandering and lessens instances of weld contamination. These electrodes can be used for AC welding, and they are exceptional for DC electrode negative (straight polarity) on carbon and stainless steel, nickel and titanium applications.

During manufacturing, thorium is evenly dispersed throughout the electrode. This evenness allows the electrode to maintain a sharpened edge the ideal electrode shape for welding thin steel. Sharpening the electrode's point, however, should be done with great care. Thoriated tungsten contains low levels of radioactivity. Therefore, operators must always follow manufacturer's warnings, instructions, and the MSDS (Material Safety Data Sheet) for its use.

Diameter [mm]	Length [mm]	Packaging [pcs/box]
1.6	175	10
2.0	175	10
2.4	175	10
3.2	175	10

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 Eczacıbaşı

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