

Flux Cored Wire

71T1 - Gas Shielded Flux Cored Welding Wire

Provides excellent performance in all position welding

Description: Provides a stable arc, low spatter, easy to remove slag, and neat weld metal.

Application: For welding mild steel, and 490MPa grade high strength steel. Use for Ships, Machinery Fabrication, Bridges, Structures, Steel Frames, Vessels etc.

Specifications: Conforms to AWS A5.20

Qualifications and Approvals: ABS - CCS - DNV - GL - KR - LR - NK

Weld Metal - Chemistry

	C	Mn	Si	S	P
Typical	0.055	1.35	0.38	0.010	0.015

Weld Metal - Mechanical Properties

	Tensile Strength	Yield Strength	Elongation	Charpy V-Notch Impact (J)	Gas Shield
Typical	540	450	30	100 (-4 °F)	CO ₂

71TGS - Carbon steel, flux cored wire

Provides ability to perform in all position welding

Description: A carbon steel, self shielded, flux cored wire that produces smooth arc action, low spatter, full slag coverage, and easy slag removal. Not having to use gas makes this product extremely popular due to its versatility and portability.

Application: This flux cored wire is intended for welding thin-gauge carbon steel. It's the natural choice for applications such as lap and butt welds on galvanized sheet metal, and high speed welds on sheet metal up to 3/16" thick, especially galvanized, aluminized, or other coated steels. The small diameters of this product work very well on the small 110 volt power source/feeders.

Characteristics: 71TGS has a superb welder appeal with exceptional quality and consistency. The arc transfer is smooth and stable, with virtually no spatter emission. This "soft" arc transfer minimizes burn-through on thin gauge material. This slag system enables the electrode to weld in all positions and also to make welds at high speed. Availability of diameters down to .030" makes this product a fine choice for use on the popular 110 volt power sources.

Specifications: Conforms to AWS A5.20

Typical Mechanical Properties

Transverse Tensile Strength (psi): 86,400 (Base metal fracture)

Longitudinal Guided Bend Test: Satisfactory

70S2 - Gas Shielded Arc Welding Wire

Performs in all position welding

Description: Triple deoxidized (Aluminum, Titanium, Zirconium) welding wire.

Application: Wire for welding mild and low alloy steels as well as thin walled materials. Being triple deoxidized with Aluminium, Titanium and Zirconium as well as Manganese and Silicon, **the wire is capable of producing efficient welds when the steel to be welded is rusty, dirty, or undercoat painted.** It is recommended for pipe welding and for root passes in heavy vessel construction. Also for welding steels of which surface will be coated.

Specifications: Conforms to AWS A5.18

Chemical composition of welding wire - % (Typical)						
	C	Si	Mn	Ti	Zr	Al
Typical	0.05	0.55	1.1	0.12	0.07	0.11

Weld Metal - Mechanical Properties					
	Tensile Strength (N/mm²)	Yield Strength (N/mm²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -40°F)	Gas Shield
Typical	480	400	22	47	CO₂

70S3 - Gas Shielded Arc Welding Wire

Performs in all position welding

Description: A premium mild steel solid wire, with silicon and manganese levels suitable for general purpose welding over clean to light levels of rust and mill scale.

Application: Frame fabrication, automotive structures, farm implements, construction equipment, pressure vessels, pipe fabrication, railcar construction and repair, general fabrication.

Widely used in high-speed robotic and automatic welding applications and semi-automatic applications.

Specifications: Conforms to AWS A5.18

Chemical composition of welding wire - % (Typical)			
	C	Si	Mn
Typical	0.10	0.6	1.2

Chemical composition of welding wire - % (Typical)					
	Tensile Strength (N/mm²)	Yield Strength (N/mm²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -40°F)	Gas Shield
Typical	530-680	460	24	47	CO₂

70S6 - Gas Shielded Arc Welding Wire

Performs in all position welding

Description: A premium mild steel solid wire formulated to provide high quality welds and trouble-free performance from heavy duty, high speed, spray transfer applications all the way to light duty low speed, short-arc applications.

Application: Frame fabrication, automotive structures, farm implements, construction equipment, pressure vessels, pipe fabrication, railcar construction and repair, general fabrication. Used in high-speed robotic and automatic welding applications and semi-automatic applications. **Specifications:** Conforms to AWS A5.18

Chemical composition of welding wire - % (Typical)			
	C	Si	Mn
Typical	0.08	0.85	1.45

Weld Metal - Mechanical Properties					
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -40°F)	Gas Shield
Typical	540-640	420	22	47	CO ₂

80SD2 - Gas Shielded Arc Welding Wire

Performs in all position welding

Description: A mild steel solid wire that contains ½ percent molybdenum for increased strength and high levels of manganese and silicon to provide good wetting, rust and scale tolerance.

Application: 80SD2 will give radiographic quality welds with excellent bead appearance in both ordinary and difficult-to-weld carbon and low alloy steels. It is suitable for single and multiple pass welding of carbon and low alloy steels and higher strength steels in the as welded and post weld heat treated conditions.

Specifications: Conforms to AWS A5.28

Chemical composition of welding wire - % (Typical)				
	C	Si	Mn	Mo
Typical	0.10	0.65	1.8	.05

Weld Metal - Mechanical Properties					
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -22°F)	Gas Shield
Typical	550-680	470	22	47	CO ₂

80SB2 - Gas Shielded Flux Cored Welding Wire**Performs in all position welding**

Description: A flux cored wire with highly basic slag and having stable and smooth arc, and good slag detachability. It produces radiographic quality welds with very low levels of Hydrogen.

Application: Used to weld 1.25% Chrome - .50% Moly steels for elevated temperatures and corrosive service.

Specifications: Conforms to AWS A5.29

Weld Metal - Chemistry (With CO₂ Shield)

	C (max.)	Mn	Si (max.)	P (max.)	Cr	Mo	S (max.)
Typical %	0.010	0.9 - 1.10	0.60	0.03	1.10-1.25	0.45-0.55	0.03

Weld Metal - Mechanical Properties

	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)
Typical	580 Min	490 Min	19% Min

90SB3 - Gas Shielded Flux Cored Welding Wire**Performs in all position welding**

Description: A flux cored wire with highly basic slag and having stable and smooth arc, and good slag detachability. It produces radiographic quality welds with very low levels of Hydrogen.

Application: Used to weld 2.25% Chrome- 1% Moly steels used for high temperature, high pressure piping, pressure vessels, oil refinery and chemical plants.

Specifications: Conforms to AWS A5.29

Weld Metal - Chemistry (With CO₂ Shield)

	C (max.)	Mn	Si (max.)	P (max.)	Cr	Mo	S (max.)
Typical %	0.010	0.9 - 1.10	0.60	0.03	2.10-2.30	0.90-1.10	0.03

Weld Metal - Mechanical Properties

	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)
Typical	630 Min	550 Min	17% Min

Gas Welding Wire

RG45 - Gas Welding Wire

Performs in all position welding

Description: A copper coated gas welding rod that is used for welding ordinary low carbon steel up to ¼" thick.

Application: It is recommended where ductility and machinability are most important. This rod is excellent for the welding of steel sheets, plates, pipes, castings and structural shapes where the minimum tensile strength requirement does not exceed 45 psi (310 MPa).

Specifications: Conforms to AWS A5.2

Weld Metal - Chemistry

	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.08	0.50	.10	0.035	0.035

Weld Metal - Mechanical Properties

	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)
Typical	340 Min	245 Min	14% Min

RG60 - Gas Welding Wire

Performs in all position welding

Description: Used to produce high tensile strength quality welds on low carbon and low alloy steels.

Application: The high silicon and manganese composition removes impurities from the molten metal thereby eliminating the need for flux. RG-60 is also used for the oxyfuel gas welding of carbon steels, where the minimum tensile strength requirement does not exceed 60 psi (415 MPa).

Specifications: Conforms to AWS A5.2

Weld Metal - Chemistry

	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.15	0.90-1.40	.35	0.035	0.035

Weld Metal - Mechanical Properties

	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)
Typical	440 Min	295 Min	22% Min



Mild Steel & Low Hydrogen Electrodes

6010 - Mild Steel Electrode

Provides excellent performance in all position welding

Description: A quick-starting, cellulosic mild steel electrode that provides outstanding arc stability, penetration and wash-in. It produces an X-ray quality weld with light slag that's easy to remove. Can be used to weld the following API 5L steels: Grade A, B, X-42, X-46, X-52, X-56 and for the root pass on material up to X-80.

Application: Construction and shipbuilding, general purpose fabrication, maintenance welding, out-of-position X-ray welds, pipe welding and vertical and overhead plate welding.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry			
	C (max.)	Mn	Si (max.)
Typical %	0.12	0.60	.20

Weld Metal - Mechanical Properties				
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -22°F)
Typical	470 Min	380 Min	22% Min	47 J

6011 - Mild Steel Electrode

Provides excellent performance in all position welding

Description: A quick-starting mild steel electrode with stable arc characteristics and excellent penetration that produces a fine spray transfer. Excellent choice for welding on steels that cannot be completely cleaned or where the steel is rusty or painted. The slag detaches easily.

Application: Galvanized steel work, general fabrication, railroad cars, shipbuilding, construction, light sheet metal fabrication and structural work.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry			
	C (max.)	Mn	Si (max.)
Typical %	0.14	0.47	.18

Weld Metal - Mechanical Properties				
	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -20°F)
Typical	536	436	25% Min	41 J

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Mild Steel & Low Hydrogen Electrodes

6013 - Mild Steel Electrode

Performs in all position welding

Description: An all purpose electrode that provides excellent arc stability. Can be used for light gauge metal and offers sufficient penetration for welding on heavier assemblies with light slag that's easy to remove.

Application: Ideal for general purpose fabrication, metal buildings, machine parts and shaft buildup. Suitable for welding hard to reach areas and spot welding.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry					
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.09	0.30	.20	0.012	0.016

Weld Metal - Mechanical Properties				
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ 0°F)
Typical	501 Min	423 Min	26.5% Min	47

6022 - Mild Steel Electrode

Description: Designed for welding roof decking to support beams and other similar applications where burn-through spot welds with full penetration are required. It is also used to weld through galvanized or painted roof decking and can be used on plated and dirty decking as well.

Application: Burn-through spot welds for roof decking and sheet metal, rapid downhill welding to join light gauge materials.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry					
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.18	0.25	.15	0.015	0.017

Weld Metal - Mechanical Properties			
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)
Typical	414 Min	Min	Min



Mild Steel & Low Hydrogen Electrodes

7014 - Mild Steel Electrode

Performs in all position welding

Description: A versatile, all-position electrode, with a smooth stable arc, that can be used with either AC or DC (electrode negative or electrode positive) power. It has a rutile base with an iron powder addition that serves to increase welder-appeal with its outstanding deposition rate and speed of travel. The slag detaches easily.

Application: Construction of frames, heavy sheet metal, and machine bases.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry					
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.06	0.54	.35	0.025	0.013

Weld Metal - Mechanical Properties				
	Tensile Strength (N/mm2)	Yield Strength (N/mm2)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ 32°F)
Typical	545 Min	470 Min	27.5% Min	47 J

7018-1 - Mild Steel Electrode

Provides excellent performance in all position welding

Description: A general purpose electrode that provides excellent start and restart capabilities, and a smooth and virtually spatter free arc for superior weldability. Slag removal is one of the best and in many cases is self-peeling. It operates smoothly even on somewhat dirty or rusty surfaces.

Application: Petrochemical plants (pressure vessels, fittings, piping), steel structural work, field erections (buildings and bridges); mining equipment; some pipelines; rail car and locomotive construction; heavy equipment fabrication and repair, shipbuilding, drilling rigs; farm machines.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry					
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.02	1.06	.50	0.011	0.014

Weld Metal - Mechanical Properties				
	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -58°F)
Typical	530 Min	460	20% Min	47 J

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Mild Steel & Low Hydrogen Electrodes

7024 - Rutile Electrode

Performs in welding position - horizontal and vertical up

Description: An excellent high-speed electrode for fillet welds. It is exceptionally fast when used down hand in properly designed weld joints or in horizontal fillet welds where equal leg fillets are desired. When a drag welding technique is used, it operates well on either AC or DC (electrode negative) power. 7024 minimizes slag entrapment, and the slag is self-removing in most applications.

Application: Earth moving equipment, mining machinery, plate fabrication, railroad cars, structural, shipbuilding and mobile trailers.

Specifications: Conforms to AWS A5.1

Weld Metal - Chemistry					
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)
Typical %	0.08	0.81	.43	0.018	0.019

Weld Metal - Mechanical Properties				
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -32°F)
Typical	510 Min	420 Min	22% Min	47

8018B2 - Heat Resisting Electrode

Performs in all position welding except vertical down

Description: Used to produce high tensile strength quality welds on higher strength steels greater than 80,000 pounds. The coating is specially formulated to resist moisture pick-up under conditions of high heat and humidity, which helps prevent hydrogen cracking and aids in elimination of starting porosity.

Application: Used for fabrication and maintenance of boilers and piping made of heat resisting Cr-Mo alloyed steels. Weld metal is resistant to working temperatures up to 1058°F.

Specifications: Conforms to AWS A5.5

Weld Metal - Chemistry							
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)	Cr	Mo
Typical %	0.07	0.71	.62	0.010	0.009	1.30	.55

Weld Metal - Mechanical Properties				
	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -22°F)
Typical	580 Min	480 Min	20% Min	47

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Low Hydrogen and Low Alloyed Electrodes

9018B3 - Heat Resisting Electrode

Performs in all position welding except vertical down

Description: Used to produce high quality welds on higher strength piping, castings and forgings. The coating is specially formulated to resist moisture pick-up under conditions of high heat and humidity, which helps prevent hydrogen cracking and aids in elimination of starting porosity.

Application: Used for welding boilers and piping made of heat resisting Cr-Mo alloyed steels, and nitrated steels. Weld metal is resistant to working temperatures up to 1112°F.

Specifications: Conforms to AWS A5.5

Weld Metal - Chemistry

	C (max.)	Mn	Si (max.)	P (max.)	S (max.)	Cr	Mo
Typical %	0.07	0.72	.42	0.014	0.009	2.20	1.10

Weld Metal - Mechanical Properties

	Tensile Strength (N/mm ²)	Yield Strength (N/mm ²)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -22°F)
Typical	570 Min	440 Min	20% Min	47

10018 - Low Alloyed Electrode

Performs in all position welding except vertical down

Description: Features good arc characteristics, crack resistance and high ductility. For welding low alloy, high-strength steels and manganese-molybdenum steels requiring tensile strengths of at least 100,000 psi. The coating is specially formulated to resist moisture pick-up under conditions of high heat and humidity, which helps prevent hydrogen cracking and aids in elimination of starting porosity.

Application: Excellent for manganese-molybdenum castings, alloy forgings, structural, and for pressure vessels in either as welded or stress relieved conditions.

Specifications: Conforms to AWS A5.5

Weld Metal - Chemistry

	C (max.)	Mn	Si (max.)	P (max.)	S (max.)	Ni	Mo
Typical %	0.07	1.3	.50	0.025	0.012	1.3	.50

Weld Metal - Mechanical Properties

	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -76°F)
Typical	720	630	20% Min	120 J

11018 - Low Alloyed Electrode**Performs in all position welding except vertical down**

Description: Features good arc characteristics, low spatter, easy slag removal, crack resistance, and high ductility. This electrode provides excellent puddle control with good wetting action and tie in.

Application: For welding low alloy, high-strength steels which require weld joints with 100,000 psi minimum tensile strength, good ductility and crack resistance along with high notch toughness at temperatures of -60°F. Low alloy steels typically welded with 11018 include HY-80, HY-90, HY-100 and T-1 steels.

Specifications: Conforms to AWS A5.5

Weld Metal - Chemistry								
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)	Ni	Mo	Cr
Typical %	0.05	1.4	.28	0.014	0.014	1.85	.33	.20

Weld Metal - Mechanical Properties				
	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -76°F)
Typical	780	700	16% Min	60 J

12018 - Low Alloyed Electrode**Performs in all position welding except vertical down**

Description: Features good arc characteristics, low smoke level and high ductility. For welding low alloy, high-strength steels requiring tensile strengths of at least 120,000 psi. The coating is specially formulated to resist moisture pick-up under conditions of high heat and humidity, which helps prevent hydrogen cracking and aids in elimination of starting porosity. Slag removal is quick and easy.

Application: Typical applications include low alloy steels, forgings, castings, plate and pressure vessels, tempered steels, cementation steels, and other steels.

Specifications: Conforms to AWS A5.5

Weld Metal - Chemistry							
	C (max.)	Mn	Si (max.)	P (max.)	S (max.)	Ni	Mo
Typical %	0.06	1.6	.32	0.016	0.011	1.3	.50

Weld Metal - Mechanical Properties				
	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (Lo=5 do) (%)	Impact Strength (ISO-V/ -59.8°F)
Typical	830	740	16% Min	28 J