

Welding Electrodes for Mild Steel

AWS A5.1 E6013 is the most popular steel welding rods with high titania potassium type coating. It is able to provide excellent welding performance and satisfactory weld can be obtained in all position welding. 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 of Deposited Metal (%)

	C	Mn	Si	S	P	Ni	Cr	Mo	V
Standard	≤0.20	≤1.20	≤1.00	≤0.035	≤0.040	≤0.30	≤0.30	≤0.30	≤0.08
Typical	0.070	0.41	0.26	0.021	0.023	0.018	0.027	0.002	0.001

Mechanical Properties of Deposited metal (AW)

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

Sizes, Pieces & Recommended Current (AC or DC)

Size(mm)		2.5×300	2.5×350	3.2×350	4.0×400	4.0×450	5.0×400	5.0×450
Pieces(5kg)		≈300	≈255	≈157	≈90	≈80	≈59	≈52
Current(A)	F,H	60-90	60-90	80-130	150-190	150-190	180-250	180-250
	V,OH	50-80	50-80	80-110	130-170	130-170	---	---

Approvals	CCS	LR	ABS	BV	GL	DNV	NK	CWB
Grade	2	2N	2	2	2	2	KMW2	E4313

Welding Rod for High Tensile Steel

AWS E7018 is an outstanding quality all position welding electrode covered with extra low hydrogen potassium type coating for high tensile strength mild steels and low alloy steels. Its nominal welding efficiency is about 110% due to iron powder is contained. The weld metal shows an excellent low temperature toughness and high crack-resistance, It is widely used in important 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 of Deposited Metal (%)

	C	Mn	Si	S	P	Ni	Cr	Mo	V
Standard	≤0.15	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.20	≤0.30	≤0.08
Typical	0.068	1.36	0.51	0.010	0.016	0.022	0.016	0.010	0.012

Mechanical Properties of Deposited metal (AW)

	Yield Point	Tensile Strength	Elongation	Impact Value(J)
	ReH (Mpa)	Rm (Mpa)	A4 (%)	-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

Approvals	CCS	LR	ABS	BV	GL	DNV	NK
Grade	2	2N	2	2	2	2	KMW2

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AWS A5.1 E6011

JIS Z3211 D4311

GB/T 5117 E4311

Vertical-down Welding Rod for Mild Steel

ASW A5.1 E6011 is a high cellulose potassium type welding rods for mild steel. It is suitable for vertical-down welding and lap welding for sheet structures. Such as smoke pipes, wind pipes, oil tanks of transformer, outside coe of vehicles, etc. It is not good for wide weave when welding and it is not suitable for multi-layer or face welding.



Chemical Composition of Deposited Metal (%)

	C	Mn	Si	S	P	Ni	Cr	Mo	V
Standard	≤0.20	≤1.20	≤1.00	≤0.035	≤0.040	≤0.30	≤0.20	≤0.30	≤0.08
Typical	0.096	0.67	0.20	0.024	0.024	0.008	0.041	0.001	0.012

Mechanical Properties of Deposited metal (AW)

	Yield Point	Tensile Strength	Elongation	Impact Value(J)
	ReH (Mpa)	Rm (Mpa)	A4 (%)	- 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(5kg)		≈328	≈185	≈120	≈76
Current(A)	OH,VD	30-50	70-100	90-140	150-200

Approvals	CCS	LR	ABS	BV	GL	DNV	NK
Grade	2	2N	2	2	2	2	KMW2

AWS A5.1 E6010

CSA W48-01 E4310

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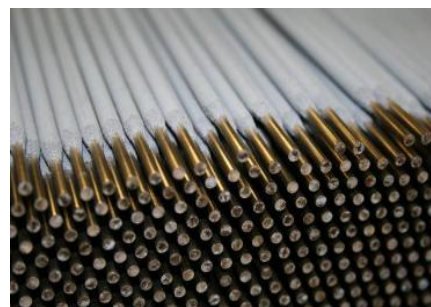
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Vertical-down Welding Rod for Mild Steel

AWS E6010 is a high cellulose sodium type welding rods. It shows a very good performance in welding of all positions, vertical down and overhead. The rod forms on double sides by one side welding. Its is suitable for welding root passes, hot passes, filler and cover passes as well as for capping of general pipes and similar structures. Keeping the rods in dry condition and the rods do not need to re-brake before welding. In welding small current is recommended and swaying breadth should be less than 2.5 times of diameter of the steel core of rod.



Chemical Composition of Deposited Metal (%)

	C	Mn	Si	S	P	Ni	Cr	Mo	V
Standard	≤0.20	≤1.20	≤1.00	≤0.035	≤0.040	≤0.30	≤0.20	≤0.30	≤0.08
Typical	0.091	0.55	0.17	0.010	0.011	0.011	0.022	0.001	0.03

Mechanical Properties of Deposited metal (AW)

	Yield Point	Tensile Strength	Elongation	Impact Value(J)
	ReH (Mpa)	Rm (Mpa)	A4 (%)	-20 °C
Standard	≥330	≥430	≥22	≥27
Typical	400	500	29	80

Sizes, Pieces & Recommended Current (AC or DC)

Size(mm)		2.5×300	3.2×350	4.0×350	5.0×350
Pieces(5kg)		≈355	≈192	≈125	≈78
Current(A)	F,H	60-90	70-110	110-150	150-200
	OH,VD	50-80	60-100	100-140	140-180

Approvals	CCS	LR	ABS	BV	GL	DNV	NK
Grade	2	2N	2	2	2	2	KMW2

Welding Rods for Carbon Steel & High Tensile Strength Steel
AWS A5.1 E7015

Standard & Typical Chemical Composition of Deposited Metal(%)								
C	Mn	Si	S	P	Cr	Ni	Mo	V
≤0.16 0.078	≤1.60 1.21	≤0.9 0.51	≤0.035 0.010	≤0.040 0.020	≤0.2 0.037	≤0.3 0.014	≤0.3 0.002	≤0.08 0.01
Welding position	Type of Current	Standard & Typical Mechanical Properties of Deposited Metal(AWI)				Application		
		Yield Point ReL(Mpa)	Tensile Strength Rm(Mpa)	Elongation A4(%)	Akv Value(J)			
F,V, OH,H	DC ⁺	ReH≥375 440	490-660 540	≥22 31	-20°C ≥47 160	Suitable for welding important structures made of low alloy steel with corresponding grade of tensile strength, such as ships and heavy machinery.		

AWS A5.1 E7016

Standard & Typical Chemical Composition of Deposited Metal(%)								
C	Mn	Si	S	P	Cr	Ni	Mo	V
≤0.15 0.069	≤1.60 1.11	≤0.75 0.53	≤0.035 0.007	≤0.035 0.020	≤0.20 0.037	≤0.30 0.013	≤0.30 0.002	≤0.08 0.010
Welding position	Type of Current	Standard & Typical Mechanical Properties of Deposited Metal(AWI)				Application		
		Yield Point ReL(Mpa)	Tensile Strength Rm(Mpa)	Elongation A4(%)	Akv Value(J)			
F,V, OH,H	DC ⁺	≥400 440	≥490 550	≥22 31	-30°C ≥27 170	Welding important structures made of low alloy steel with corresponding grade of tensile strength, such as ships and heavy machinery.		

AWS A5.1 E7018

Standard & Typical Chemical Composition of Deposited Metal(%)								
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C	Mn	Si	S	P	Cr	Ni	Mo	V
≤0.15 0.068	≤1.60 1.38	≤0.75 0.41	≤0.035 0.012	≤0.035 0.015	≤0.20 0.011	≤0.30 0.035	≤0.30 0.001	≤0.08 0.002
Welding position	Type of Current	Standard & Typical Mechanical Properties of Deposited Metal(AWI)				Application		
		Yield Point ReL(Mpa)	Tensile Strength Rm(Mpa)	Elongation A4(%)	Akv Value(J)			
F,V, OH,H	AC≥70V or DC ⁺	≥400 465	≥490 560	≥22 29	-30°C ≥27 130	Suitable for welding important low alloy structures, which belong to the same grade of tensile strength such as boilers, pressure vessels, pipe lines ,offshore drilling platform etc		

AWS A5.1 E5003

Standard & Typical Chemical Composition of Deposited Metal(%)								
C	Mn	Si	S	P	Cr	Ni	Mo	V
≤0.15 0.085	≤1.25 0.54	≤0.9 0.19	≤0.035 0.017	≤0.040 0.027	≤0.2 0.015	≤0.3 0.05	≤0.3 0.005	≤0.08 0.01
Welding position	Type of Current	Standard & Typical Mechanical Properties of Deposited Metal(AWI)				Application		
		Yield Point ReL(Mpa)	Tensile Strength Rm(Mpa)	Elongation A4(%)	Akv Value(J)			
F,V, OH,H	AC or DC	≥375 440	≥490 530	≥20 27	0°C ≥27 75	For welding structures fabricated by low alloy steels.		



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