Stainless Steel Flux-Cored Wires

Trade Name (Wire)	Trade Number (Rod)	Shield Gas	Standard	Standard	Diameter mm	Typical Chemical Composition of Deposited Metal(%)								Typical Mechanical Properties of Deposited Metal		Application and Description
			GB/T 17853-2018	AWS A5.22		C	Si	Mn	P	S	Cr	Ni	Other	Rm(MPa)	A(%)	
E307	A172	CO_2	TS307-FC11	E307T1-1	1.0 1.2 1.6	0.091	0.74	3.91	0.021	0.014	19.43	9.50	——	617	33.6	It is 18%Cr-9%Ni-4%Mn flux cored wire shielded by CO_2 gas. It can be used for nonmagnetic, high manganese steel, hardening corrosion resistant steel welding. For example, it is usually used for nuclear submarines, bulletproof steel, etc which need in non-magnetic occasions or difficult welding of dissimilar steel welding.
E308	A102	CO_2	TS308-FC11	E308T1-1	1.0 1.2 1.6	0.042	0.58	1.18	0.018	0.010	19.80	9.80	——	580	40	It is 21%Cr-10%Ni austenitic stainless steel flux cored wire shielded by CO_2. It can be used for joining 12Cr18Ni9（SUS302）or 06Cr18Ni10（SUS304）. It is usually used for petroleum chemical industry, pressure vessel, food machinery, medical equipment, fertilizer equipment, nuclear reactor and so on.
E308H	A102H	CO_2	TS308H-FC11	E308HT1-1	1.0 1.2 1.6	0.055	0.60	1.27	0.017	0.011	19.85	9.89	——	590	38	It is 21%Cr-10%Ni austenitic stainless steel flux cored wire shielded by CO_2. It can be used for joining 12Cr18Ni9（SUS302）or 06Cr18Ni10（SUS304). Therefore it usually can be used for petroleum chemical industry, pressure vessel, food machinery, medical equipment, fertilizer equipment, nuclear reactor and so on.
E308L	A002	CO_2	TS308L-FC11	E308LT1-1	1.0 1.2 1.6	0.027	0.85	1.51	0.020	0.010	19.30	9.82	——	560	42.5	It is 21%Cr-10%Ni austenitic stainless steel flux cored wire shielded by CO_2. It can be used for joining 022Cr19Ni10 (SUS304L). It usually can be used for petroleum chemical industry, pressure vessel, food machinery, medical equipment, fertilizer equipment, textile machinery and so on.
E309	A302	CO_2	TS309-FC11	E309T1-1	1.0 1.2 1.6	0.049	0.83	1.25	0.021	0.012	23.58	12.95	——	590	31.2	It is 24%Cr-13%Ni stainless steel flux cored wire shielded by CO_2. It can be used for joining the same type of stainless steel, stainless steel liner, disssmilar steel (such as 06Cr19Ni10 and low carbon steel), high chromium steel and high manganese steel welding.
E309L	A062	CO_2	TS309L-FC11	E309LT1-1	1.0 1.2 1.6	0.028	0.88	1.32	0.019	0.011	23.10	12.98	——	570	40	It is 24%Cr-13%Ni stainless steel flux cored wire shielded by CO_2. It can be used for joining 22Cr-12Ni stainless steel, the same type of stainless steel, clad steel and dissimilar steel.
E309LMo	A042	CO_2	TS309LMo-FC11	E309LMoT1-1	1.0 1.2 1.6	0.030	0.59	1.05	0.021	0.009	21.94	13.05	Mo:2.18	560	32	It is 24%Cr-13%Ni stainless steel flux cored wire shielded by CO_2. As carbon content is low and adding Mo, it has good performance on crack resistence. It usually can be used for petroleum chemical industry, power station and so on.
E316	A202	CO_2	TS316-FC11	E316T1-1	1.0 1.2 1.6	0.043	0.56	1.23	0.020	0.010	19.30	12.31	Mo:2.03	580	36	It is 19%Cr-12%Ni-2%Mo stainless steel flux cored wire shielded by CO_2. It can be used for welding of 06Cr17Ni12Mo2（SUS316) stainless steel equipment under organic acid and inorganic acid medium (non oxidizing acid) environment cause it has good performance on corrosion resistant, heat resistant, crack resistance.
E316L	A022	CO_2	TS316L-FC11	E316LT1-1	1.0 1.2 1.6	0.030	0.58	1.35	0.018	0.010	17.91	12.53	Mo:2.37	520	35.5	It is 19%Cr-12%Ni-2%Mo stainless steel flux cored wire shielded by CO_2. It can be used for welding of 022Cr17Ni12Mo2（SUS316L） stainless steel equipment under organic acid and inorganic acid medium (non oxidizing acid) environment cause there is Mo in the content.
E347	A132	CO_2	TS347-FC11	E347T1-1	1.0 1.2 1.6	0.047	0.65	1.53	0.020	0.012	19.45	10.51	Nb:0.72	550	32	It is 20%Cr-10%Ni-Nb stainless steel flux cored wire shielded by CO_2. It can be used for joining 07Cr19Ni11Ti（SUS321） and 07Cr18Ni11Nb（SUS347） cause it has good performance on intergranular corrosion resistance and has low crack sensitivity. It usually can be used for food machinery, medical equipment, pressure vessel, petroleum chemical industry, etc.

Stainless Steel Flux-Cored Wires

Trade Name (Wire)	Trade Number (Rod)	Shield Gas	Standard	Standard	Diameter mm	Typical Chemical Composition of Deposited Metal(%)								Typical Mechanical Properties of Deposited Metal		Application and Description
			GB/T 17853-2018	AWS A5.22		C	Si	Mn	P	S	Cr	Ni	Other	Rm(MPa)	A(%)	
E410	G202	CO_2	TS410-FC11	E410T1-1	1.2 1.6	0.074	0.20	0.48	0.020	0.010	11.82	0.59	——	550	28	It is 13%Cr martensitic stainless steel flux cored wire shielded by CO_2 and It can be used for hydropower station, valves and other occasions which need wear resistance, and corrosion resistance. For example, it can be used for surfacing welding 12Cr13 (SUS410) , etc.
E410NiMo	G207NiMo	CO_2	TS410NiMo-FC11	E410NiMoT1-1	1.2 1.6	0.045	0.41	0.70	0.022	0.011	11.91	4.30	Mo:0.53	780	17	It is 13%Cr martensitic stainless steel flux cored wire shielded by CO_2. It can use less of Cr and Ni to limit the harmful effect of the mechanical properties of ferrite. As there are Ni and Mo in deposited metal, it has higher strength and hardness. It can be used for joining more wear-resisting and corrosion resistanting materials for example: hydropower station, valves and other occasions which need wear resistance, and corrosion resistance such as ASTM CA6NM and the similar objects, small size of 410, 410S, 405, etc.
E2209	AF2209-16	CO_2	TS2209-FC11	E2209T1-1	1.2 1.6	0.029	0.41	1.31	0.021	0.011	22.26	8.90	Mo:3.11 N:0.18	750	25	It is 22%Cr-8%Ni-3%Mo-N austenite and ferrite duplex stainless steel flux-cored wire shielded by CO_2. Deposited metal has comprehensive nature of austenitic stainless steel and stress corrosion resistance properties of ferritic stainless steel. It can be used for petroleum chemical industry, ship manufacturing industry such as joining of 00Cr22Ni5Mo3N (SUS2205).
E2594	AF2594-16	CO_2	TS2594-FC11	——	1.2 1.6	0.029	0.65	1.57	0.021	0.010	24.99	10.37	Mo:3.78 W:0.17 N:0.23	793	22	It is 25%Cr-9%Ni-4%Mo-N austenite and ferrite duplex stainless steel flux-cored wire shielded by CO_2. Because it has very low carbon content, and contains a certain amount of molybdenum and nitrogen, deposited metal has excellent resistance to pitting corrosion and stress corrosion cracking performance (PRE≥ 40). It is suitable for the welding of marine oil, gas and petrochemical industry such as welding 00Cr25Ni7Mo4N.
E310	A402	CO_2	TS310-FC11	E310T1-1	1.2 1.6	0.12	0.5	1.0	0.027	0.015	25.8	20.8	——	650	28	It is 26%Cr-21%Ni austenitic stainless steel flux cored wire shielded by CO_2.It can be used for all position welding, and it has good welding process performance, stable arc, less spatter, beautiful weld formation and good high temperature resistance. It can be used for high temperature furnace, coal coking equipment, and it can be used for cladding and dissimilar steel welding too.
E317L	A037Mo	CO_2	TS317L-FC11	E317LT1-1	1.2 1.6	0.03	0.5	1.32	0.032	0.015	18.89	13.11	Mo:3.65	560	26	It is 19%Cr-12%Ni-2%Mo stainless steel flux cored wire shielded by CO_2. It can be used for welding of 022Cr17Ni12Mo2（SUS316L）stainless steel equipment under organic acid and inorganic acid medium (non oxidizing acid) environment cause there is Mo in the content.
E312	E312-16	CO_2	TS312-FC11	E312T1-1	1.2 1.6	0.10	0.61	1.37	0.03	0.018	29.46	9.48	——	690	20	It is 29%Cr-9%Ni austenite and ferrite duplex stainless steel flux-cored wire shielded by CO_2.E312 can maintain austenite and ferrite duplex structure after being diluted by a large amount of austenite forming elements, so it has high crack resistance.It can be used for all position welding.It is suitable for the welding of 29% Cr-9% Ni type stainless steel and dissimilar steel.





Stainless Steel Welding Strip

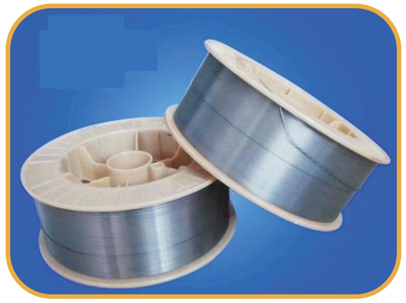
Welding Strip Grade	Standard	Recommended Flux	Dilution Rate %	Ferrite Content %	Surfacing Layer Thickness mm	Typical Chemical Composition of Deposited Metal(%)								Application and Description
	NB/T 47018					C	Si	Mn	Cr	Ni	S	P	Other	
HD308L	EQ308L	SMJ34	8—12	4	3.5-5.0	0.018	0.37	1.71	20.00	10.21	0.002	0.015	——	It can be used for submerged arc welding of lining of pressure vessels for nuclear power, petrochemicals,corrosion resistant layer (the second layer above) of tube plate,etc.
HD309LA	EQ309L(A)	SMJ34	8—12	7	3.5-5.0	0.020	0.31	2.10	21.50	11.20	0.002	0.016	——	It can be used for submerged arc welding of nuclear power pressure vessel, fertilizer urea tower, heat exchanger,pressure vessel lining,transition layer of tube-sheet,etc.
HD309LNb	EQ309LNb	SMJ35	8—12	7	3.5-5.0	0.020	0.35	1.98	21.40	11.50	0.003	0.015	Nb : 0.43	It can suffice the requirements of E347 composition after single layer surfacing. It can used for single layer surfacing of stainless steel corrosion resistant layer of petrochemical equipments, Coal chemical equipments, offshore platform equipments, etc.
HD309LMo	EQ309LMo	SMJ34	8—12	7	3.5-5.0	0.021	0.41	2.05	21.54	11.35	0.004	0.015	Mo : 2.85	It can be used for submerged arc welding of heat exchanger,pressure vessel lining,transition layer of tube-sheet,etc.
HD316L	EQ316L	SMJ34	8—12	6	3.5-5.0	0.021	0.34	1.19	18.90	12.60	0.007	0.019	Mo : 2.90	It can be used for submerged arc welding of corrosion resistant layer (the second layer above) of pressure vessel equipments,such as urea synthesis tower, gasification furnace, heat exchanger, etc.
HD347L	EQ347L	SMJ35	8—12	7	3.5-5.0	0.023	0.66	1.45	19.40	10.70	0.005	0.022	Nb : 0.31	It can be used for submerged arc welding of lining of pressure vessels for newclear power, petrochemicals,corrosion resistant layer (the second layer above) of Hydrogenation reactor,etc.

Nickel-Alloy Solid Wires

Trade Name (Wire)	Standard		Typical Chemical Composition of Deposited Metal(%)											Application and Description
	GB/T15620-2008	AWS A5.14	C	Mn	Fe	P	S	Si	Cu	Ni	Al-Other	Ti-Other	Cr	Other	
ERNi-1	SNI2061	ERNi-1	≤0.10	≤0.75	≤0.75	≤0.03	≤0.015	≤0.75	≤0.25	≥95	Al≤1.0	Ti:2.0-3.5	——	≤0.5	ERNi-1 is a kind of pure nickel argon arc welding wire, because there is a certain amount of Ti in it, this kind of welding wire has a very low probability of porosity in the welding process.The arc combustion is stable, the weld forming is beautiful, the weld metal has good heat resistance, corrosion resistance and excellent comprehensive mechanical properties.
ERNiCu-7	SNI4060	ERNiCu-7	≤0.03	≤4.00	≤2.50	≤0.02	≤0.015	≤1.25	Rem	62.0-69.0	Al≤1.25	Ti:1.5-3.0	——	≤0.5	ERNiCu-7 is a kind of nickel-copper alloy argon arc welding wire with excellent welding properties,stable arc combustion and good weld forming.At the same time,the weld metal has good heat resistance, corrosion resistance and excellent comprehensive mechanical properties.It is mainly used for welding nickel-based alloy and dissimilar steel.
ERNiCr-3	SNI6082	ERNiCr-3	≤0.10	2.5-3.5	≤3.0	≤0.03	≤0.015	≤0.5	≤0.5	≥67	Nb+Ta: 2.0-3.0	Ti≤0.75	18-22	≤0.5	ERNiCr-3 is a kind of Ni-Cr alloy argon arc welding wire, which has excellent welding performance, stable arc combustion,beautiful weld forming.The weld metal has good heat resistance, corrosion resistance and excellent comprehensive mechanical properties.
ERNiCrMo-4	SNI6276	ERNiCrMo-4	≤0.02	≤1.00	4.0-7.0	≤0.04	≤0.03	≤0.08	≤0.5	Rem	Co≤2.5 V≤0.35	Mo:15.0-17.0 W:3.0-4.5	14.5-16.5	≤0.5	ERNiCrMo-4 is a kind of Ni-Cr-Mo alloy argon arc welding wire. It has excellent welding properties, the arc combustion is stable,the weld forming is beautiful,and the weld metal of it has good heat resistance, corrosion resistance and excellent comprehensive mechanical properties. It is mainly used for welding nickel-based alloy and dissimilar steel.
ERNiCrMo-3	SNI6625	ERNiCrMo-3	≤0.10	≤0.5	≤5.0	≤0.02	≤0.015	≤0.5	≤0.5	≥58	Nb+Ta: 3.15-4.15 Al≤0.40	Mo:8.0-10.0 Ti≤0.40	20-23	≤0.5	ERNiCrMo-3 is a kind of Ni-Cr-Mo alloy argon arc welding wire, which has excellent welding properties,stable arc combustion, and beautiful weld forming.The weld metal has good heat resistance, corrosion resistance and excellent comprehensive mechanical properties.

Nickel-Alloy Flux-Cored Wires

Trade Name (Wire)	Standard	Typical Chemical Composition of Deposited Metal(%)											Typical Mechanical Properties of Deposited Metal				Description	Application
	AWS A5.34	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Fe	Nb+Ta	Ti	Re (Mpa)	Rm (Mpa)	A (%)	AKV (J)		
JTHD-N625	ENiCrMo3T1-4	0.025	0.36	0.35	0.005	0.003	63.6	21.8	8.7	0.01	2.0	3.47	0.15	480	790	42	60	JTHD-N625 is a kind of Ni-Cr-Mo alloy gas shielded flux cored welding wire.The deposited metal of it has relatively high strength and higher resistance to localized corrosion,such as pitting corrosion and gap corrosion in a wide temperature range.	It is mainly used for ①welding Ni-Cr-Mo alloys,② surfacing of Ni-Cr-Mo alloy surface③and welding steel.
JTHD-NiCr-3	ENiCr3T1-4	0.03	0.41	3.2	0.006	0.005	69.6	20.5	——	0.36	2.5	2.3	0.18	——	——	——	——	JTHD-NiCr-3 is a kind of Ni-Cr alloy gas shielded flux cored welding wire.The deposited metal of it has relatively high strength,higher corrosion resistance,and it also has good comprehensive mechanical properties.It has good oxidation resistance and high creep rupture resistance at high temperature.	It is mainly used for ① welding nickel-chromium alloy, nickel-chromium iron alloy, nickel-iron and chromium alloy, ② welding coating and dissimilar metal joints③and welding nickel-steelat at low temperature .



Surfacing Flux-Cored Wires

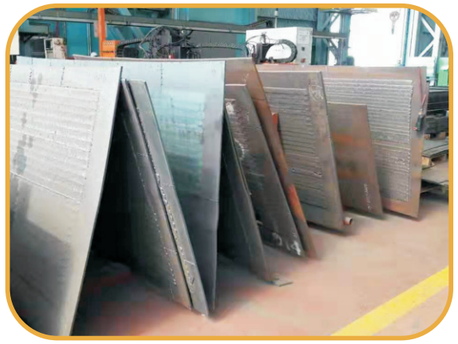
Trade Name	Shield Gas	Diameter	Typical Chemical Composition of Deposited Metal(%)						Hardness（HRC）	Application and Description
			C	Si	Mn	Cr	Mo	Other	Deposit Hardness	
YDMn15	CO_2	1.2 1.6	≤1	1.1	11-16	——	——	≤2	HB≥170	The deposit metal is austenitic high manganese steel with the characteristics of work hardening, high toughness and wear resistance. It can be used for hardfacing of crusher, high manganese steel rail, bulldozer and other impact wear parts.
YD256	CO_2	1.2 1.6	≤1.1	1.2	11-16	——	——	≤5	HB≥170	It is suitable for single-layer or multi-layer surfacing of various damaged machines, high manganese rail turnouts, bulldozers and other vulnerable parts.
YD560	CO_2	1.2 1.6 1.8	≤1.1	≤2	12--18	12--18	≤4	——	HB:220-250	The deposit metal of the product is high manganese chromium austenitic steel, which has the properties of corrosion resistance, high tensile strength resistance, magnetic resistance, thermal shock resistance, etc. It is often used in buffer layer, forging die, rail welding, mixer, valve sealing surface, etc.
YD40	CO_2	1.2 1.6	0.09	0.73	6.21	18-20	≤2	Ni:8-10	HB≥160 After Work Hardening :40-45	It is suitable for the welding and repairing of excavator bucket wear plate, railway and tram rails, and press tamping rod. It can also be used as a special welding wire for repairing steel workpieces with 14% Mn content. It can also be used for welding dissimilar steel or as the backing layer of workpiece with certain carbon content.
YD102	CO_2	1.2 1.6	0.15	——	≤3.5	——	——	——	HB≥220	It is often used for surfacing or repairing the surface of low carbon, medium carbon and low alloy steel wear parts, such as axle gear and mixer blade.
YD112	CO_2	1.2 1.6	0.15	——	——	≤2	≤1.5	——	HB≥220	It is suitable for surfacing and repairing worn parts of low carbon steel, medium carbon steel and low alloy steel, especially for surfacing and repairing of mining machinery and agricultural machinery.
YD212	CO_2	1.2 1.6	0.3-0.6	——	——	≤5	≤4	——	≥50	It is suitable for impact resistant and high wear-resistant workpieces, and for single or multi-layer surfacing repair of damaged workpieces, such as gears, dredgers, mining machinery, etc.
YD410	CO_2	1.2 1.6	≤0.12	0.65	0.7	13.2	——	——	≥38	The deposit metal is 13% chromium martensite steel, which has good friction resistance, wear resistance and corrosion resistance. It is suitable for continuous casting rolls, valves, stirring impellers, steam turbine parts, etc.
YD420	CO_2	1.2 1.6	≤0.25	0.75	0.76	10-16	——	≤5	46-50	The product has good wear resistance and hot crack resistance, and is used for hardfacing of parts under high mineral corrosion, such as rail roll, continuous casting roll, valve, etc.
YD410NiMo	CO_2	1.2 1.6	≤0.06	——	0.8	11-12.5	0.4-0.7	Ni:4-5	≥40	The product has good wear resistance and corrosion resistance. It is used for continuous casting roll, valve, impeller and steam turbine parts.
YD450	CO_2	1.2 1.6 2.4	<0.1	0.65	1.2	12-16	0.3-0.7	Ni ≥2 N:0.07-0.13	42-48	The deposit metal is ferrite martensite steel with nitrogen element. So it has corrosion resistance, wear resistance, heat shock resistance. It is mainly used for surfacing of continuous casting roll.
YD140	CO_2	1.2 1.6	<0.3	0.57	0.82	5-10	2-5	——	40-45	It is used for the repair of hot shear blade, punch tool and hot forging die.
YDS145	CO_2	1.2 1.6	<0.3	0.91	0.85	5-10	2-5	Ni<3	42-44 After Heat Treatment (500℃):47-50	This product is used for hardfacing of carbon steel die (pressure die), hot shear blade, cold and heat source parts. The hardness will increase after tempering at 500 ℃.

Surfacing Flux-Cored Wires

Trade Name	Shield Gas	Diameter	Typical Chemical Composition of Deposited Metal(%)						Hardness（HRC）	Application and Description
			C	Si	Mn	Cr	Mo	Other	Deposit Hardness	
YD150	CO_2	1.2 1.6	<0.5	0.95	1.02	5-10	2-5	Ni+W +V<9	47-48 After Heat Treatment (500℃):52-53	This product is used for hardfacing of carbon steel die (pressure die) and hot shear blade. The hardness will increase after tempering at 500 ℃.
YD588	CO_2	1.2 1.6	<0.5	——	1.5	3-7	0.5-2	V+W+Nb<6	55-58	The welding wire can be used for surfacing of die working layer with certain temperature. It has the best effect with Yd150.
YD585	CO_2	1.6	<0.5	0.8	1.48	5-10	0.5-2	Ni+W +V<4	55-58	The welding wire can be used for hardfacing of wear-resistant parts under certain impact load, such as the worn surface of disc hob of roadheader and blade of hydraulic turbine. The welding wire can also be used for the welding of transition layer with special welding requirements.
YD337	CO_2	1.2 1.6	0.25-0.55	——	——	2-3.5	——	W:7-10	≥ 48	It is suitable for surfacing various kinds of hot forging dies, rolls, etc.
YD322	CO_2	1.2 1.6	<0.5	——	——	≤5.0	≤2.5	W:7-10 V≤1.0	≥ 55	This product is used for surfacing all kinds of dies and cutting tools. It can also be used to repair mechanical parts with high requirements for wear resistance.
YD601	CO_2	1.6	<0.8	0.75	1.8	5-10	0.5-5	Nb+W +V<4	58-60	After welding, the deposit metal has high hardness and no crack. This kind of welding wire can be used in special environment which requires high quality, high precision and high strength.
YD350	CO_2	1.2 1.6	<0.5	0.42	1.95	1.23	0.52	——	38-40 After Heat Treatment (850℃):44-49	This product is a kind of C-Cr-Mn alloy flux cored wire, suitable for wear-resistant metal and slightly corroded parts, such as: metal hardfacing, bulldozer sprocket, clutch support, auxiliary roll, guide roll, etc.
YD50	CO_2	1.6	<0.5	0.75	1.2	5-7	<2	Ni+W +V<1	≥50	It is suitable for hardfacing of parts with high impact resistance and wear resistance, such as shield cutter head. It can also be used for repairing hopper and edge of coal, ore loader. Impact hardness ≥ 56HRC.
YDCoCrNiW	CO_2	1.6	2.0	1.00	2.55	19.42	0.26	Co:20-30 W:2-6	≥38	This product is a kind of metal cored flux cored wire. The deposit metal contains Co, Cr, Ni, W and other alloys. The surfacing layer has good wear resistance, heat resistance and corrosion resistance, and can maintain good performance at high temperature. It is used for welding hot shear blade, valve and valve seat, screw plug and screw extruder.
YD650	CO_2	1.2 1.6	3.0	2.0	0.40	21-25	1-3	W:2-5 V<1.5	60-68	It can be used for single layer surfacing or multi-layer surfacing to repaire various worn surfaces of machine parts, such as blades of high temperature dust removal fan in heavy industry, grinding plate, mining machinery and feeding equipment of blast furnace.
YDW40	CO_2	1.6	2.11	0.84	1.61	——	——	W:40-45	≥60	This product is tungsten carbide high hardness wear-resistant flux cored wire. The deposit metal contains 40-60% tungsten carbide particles. In order to ensure that the deposit metal has the best wear resistance and toughness, its chemical composition and tungsten carbide particles are optimized. This product is mainly used for the base surfacing of the teeth and blade of bucket wheel excavator, cement mixer blade, brick mill clay grinder, oil drill pipe, crusher roller, wood planer and cutter.
YDW50	CO_2	1.6	2.30	0.80	1.62	——	——	W:45-47		

Surfacing Flux-Cored Wires

Trade Name	Shield Gas	Diameter	Typical Chemical Composition of Deposited Metal(%)						Hardness（HRC）	Application and Description
			C	Si	Mn	Cr	Mo	Other	Deposit Hardness	
YD26	self-shielded	1.2 1.6 2.8	3.5-5.5	0.26	1.25	26-28	——	——	55-60	The product is metal cored high chromium cast iron flux cored wire. It is suitable for the working condition of low impact and high stress solid abrasive wear. Typical application: the repairing of wear-resistant plate, blast furnace bell, coal mine equipment and cement equipment.
YD28	self-shielded	1.2 1.6 2.8	3.5-5.5	0.71	1.09	28-30	——	Mo+Nb≥1.0	58-63	
YD56	self-shielded	1.6 2.8	5-6	0.95	——	30-33	——	——	58-63	This product is used for surfacing and repairing of wear-resistant and corrosion-resistant workpieces under normal or high temperature. It is also used for workpieces under low and slight impact load with severe abrasive wear, such as wearing parts of mining equipment and agricultural machinery. Generally, there are many cracks on the weld surface.
YD69Nb	self-shielded	1.6 2.8	4.5-6	0.39	1.2	20-25	——	Nb:4.5-7	60-64	It has excellent resistance to high stress and impact wear. Only one layer of surfacing has high hardness. Used in cement, coal mine, brick factory, clay equipment, extruder, wear plate and sieve plate, etc.
YD78	self-shielded	1.6 2.8	4.5-6	0.39	1.2	21-25	5-7	Nb:5-7 W+V≥2	60-64	It is suitable for the case of high stress abrasive wear and solid particle erosion wear under 600 ℃. Typical applications: sintering equipment, heavy industry dust fan blade, blast furnace feeding equipment, etc.
YD540	self-shielded	2.4 2.8	0.2-0.8	0.8	1.5	3-8	0.5-2	Ni+V+Nb+W≥2	50-58	This welding wire is suitable for low stress wear, strong impact and high pressure stress working environment. There is no crack in the weld bead. Typical application:bucket teeth, wear plate, etc.
YD64	self-shielded	2.8	4.5-6	0-1	0.1-1	20-25	5-7	Co+W≥9	60-63	It is suitable for working environment with high temperature wear or extremely high stress wear below 650 ℃. Typical application: high temperature dust removal fan blade, sintering production equipment in steel plant, etc.
YD67	self-shielded	2.8	4.5-6	3.9	1.2	12-13	5-7	Co+V≥9	60-64	The deposit metal is high chromium cast iron containing chromium carbide, niobium and cobalt. At high temperature of 650 ℃ to 800 ℃, it still has excellent wear resistance and excellent anti-oxidation wear.



Creep-Resisting Steel Flux-Cored Wires

Trade Name (Wire)	Shield Gas	Standard		Diameter mm	Typical Chemical Composition of Deposited Metal(%)						Typical Mechanical Properties of Deposited Metal				Application and Description
		GB/T17493	AWS A5.29		C	Si	Mn	Cr	Mo	Other	Rm(MPa)	Rel (MPa)	A(%)	AKV (J)	
YR302	CO_2	T55T1-1C1-1CM	E81T1-B2C	1.2 1.6	0.08	0.32	0.85	1.23	0.52	P:0.017 S:0.010	620	540	23.5	——	This welding wire is a kind of titanium calcium slag welding wire, which can be welded in all positions. It is suitable for welding 1.0% Cr-0.5% Mo Pearlite Heat-resistant Steel (such as 15CrMo),steam pipe and superheated gas pipe.ATTENTION:The working temperature should be lower than 520℃.
YR307-P	CO_2	T55T5-0C1-1CM	E80T5-B2C	1.2 1.6	0.08	0.36	0.79	1.24	0.51	P:0.013 S:0.009	615	535	24.0	——	This welding wire is a kind of calcium oxide fluoride slag welding wire with good crack resistance. It is suitable for welding 1% Cr-0.5% Mo Pearlite Heat-resistant Steel (such as 15CrMo).ATTENTION:The working temperature should be lower than 520℃.
YR312	CO_2	T55T1-1C1-G1CMV	E81T1-GB2VC	1.2 1.6	0.06	0.31	0.84	1.23	0.52	P:0.014 S:0.010 V:0.22	630	545	22.5	——	This welding wire is a kind of titanium calcium slag welding wire, which can be used for all position welding. It is suitable for welding 1% Cr-0.5% Mo-V Pearlite Heat-resistant Steel (such as 12CrMoV),steam pipe and superheated gas pipe.ATTENTION:The working temperature should be lower than 540℃.
YR317-P	CO_2	T55T5-0C1-G1CMV	E80T5-GB2VC	1.2 1.6	0.08	0.34	0.83	1.24	0.51	P:0.016 S:0.011 V:0.23	615	535	26.0	96 (AMB)	This welding wire is a kind of calcium oxide fluoride slag welding wire, which is suitable for welding 1% Cr-0.5% Mo-V Pearlite Heat-resistant Steel (such as 12CrMoV),steam pipe and superheated gas pipe.ATTENTION:The working temperature should be lower than 540℃.
YR337	CO_2	T55T5-0C1-G1C1MVNb	E80T5-GB2VNbC	1.2 1.6	0.09	0.29	0.82	1.24	0.89	P:0.014 S:0.010 Nb:0.17 V:0.25	620	510	22.0	70 (AMB)	This welding wire is a kind of calcium oxide fluoride gas shielded flux cored wire. It is suitable for welding 15CrMoV Pearlite Heat-resistant Steel, steam pipe and superheated gas pipe.ATTENTION:The working temperature should be lower than 570℃.
YR402	CO_2	T62T1-1C1-2C1M	E91T1-B3C	1.2 1.6	0.08	0.33	0.87	2.28	0.96	P:0.012 S:0.011	710	590	20.0	——	This welding wire is a kind of titanium calcium slag welding wire, which can be used for all position welding.It is suitable for welding 2.25% Cr-1% Mo Pearlite Heat-resistant Steel.ATTENTION:The working temperature should be lower than 550℃.
YR407-P	CO_2	T62T5-0C1-2C1M	E90T5-B3C	1.2 1.6	0.07	0.28	0.88	2.28	0.97	P:0.017 S:0.011	720	600	21.5	——	This welding wire is a kind of calcium oxide fluoride slag welding wire.It is suitable for welding 2.25% Cr-1% Mo Pearlite Heat-resistant Steel,high temperature and high pressure pipeline,synthetic chemical machinery and petroleum cracking equipment.ATTENTION:The working temperature should be lower than 550℃.
YR717	CO_2	——	——	1.6	0.09	0.30	0.92	8.95	0.96	P:0.009 S:0.008 Ni:0.75 V:0.30 Nb:0.06 N:0.04	640	540	18	——	This welding wire is a kind of calcium oxide fluoride gas shielded flux cored wire. It is suitable for welding Cr9MoNiV (T91 or F9) creep-resisting steel with working temperature below 600-650℃,such as steam pipe and superheater pipe.If you want to test the mechanical properties of the deposited metal of YR717, it is recommended to conduct heat treatment at 760 ℃ ± 15℃, for 2hours.

Thermal Spray Coating Wires

Trade Name	Bonding Strength	Hardness (HRC)	Diameter mm	Description
P001	>52MPa	35-39	2.0	It is a type of high bonding strength and wear resistance thermal spraying powder core wire, which has low shrinkage rate and low expansion coefficient. This kind of thermal spraying cored wire can be used for spraying thick coating with good self-bonding performance, it can be used for thermal spraying bottom layer, replace aluminum bronze, it is also non-toxic, efficient and it costs less. The coating has good wear-resisting properties and can also be used as wear-resisting layer.
P002	>50MPa	43-48	2.0	It is a type of wear-resistant and corrosion-resistant thermal spraying powder core wire,it can be used as wear-resistant and corrosion-resistant coating for thermal spraying. The coating is compact, mainly used for "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) of ordinary pulverized coal boiler in coal-fired power station, and it can resist high temperature corrosion and erosion wear. It is usually used for the repairing of shaft, plunger and paper heat drying cylinder.
P003	>50MPa	50-57	2.0	It is a type of high temperature erosion resistant cermet thermal spraying powder core wire, which has good thermal shock resistance and high temperature erosion resistance.It can be used for high temperature corrosion erosion and wear resistance coating of "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) of ordinary pulverized coal boiler in coal-fired power station.
P004	>50MPa	65-70	2.0	It is a type of high hardness and high wear resistance thermal spraying powder core wire, which has the porosity of 3.9%, and the coating oxide is very little, and in the abrasive wear test,it has 9 times the relative wear resistance of 3Cr13. It is usually used as a high wear resistant protective coating. It is very suitable for the coating of "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) of circulating fluidized bed boiler, blade and other anti-erosion wear equipments.
P005	>51MPa	40-45	2.0	It is a type of corrosion-resistant and wear-resistant thermal spraying powder core wire, which can be used for thermal spraying single layer resistance (it has a good performance in oxidizing medium).Pay attention to the choice of appropriate sealing agent, because the spraying layer is martensitic stainless steel type, the linear expansion coefficient is large, the spraying layer should not be too thick.
P006	>50MPa	>55	2.0	It is a type of cermet thermal spraying powder cored wire with high temperature erosion resistance, it is usually used for boiler "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) protective coating.It can also be used as anti-corrosion and wear-resistant coating for the smoke cover of converter and flue in steel plant.

Thermal Spray Solid Wires

Trade Name	Bonding Strength	Typical Chemical Elements	Diameter mm	Application and Description
SP01	≥60MPa	Ni : 95% Al : 5%	1.6 2.0 3.0	It is a type of nickel - aluminum alloy wire for arc spraying,which is usually used to bottom up the power plant tube wall, shaft and all kinds of important parts.
SP02	——	Cr : 40~45% Ti : 0.4~1% Ni:Rem	1.6 2.0 3.0	It is a type of high chromium nickel base alloy wire material for boiler "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) protection: used in boiler "Four Tubes" (boiler air preheater, water wall tube, superheater, economizer) , as well as paper mill black liquid boiler and garbage incinerator and other similar occasions where the working environment is harsh and sulfur corrosion requirements are high.
SP03	——	Cr : 25% Al : 5.3% Fe : Rem	1.6 2.0 3.0	It is the heat resistant wire-FeCrAl, which is resistant to high temperature oxidation above 900℃, and FeCrAl with Nb can resist high temperature oxidation above 1000℃. It is often used as a heat-resistant working coating. And it also has certain sulfur corrosion resistance,so it can also be used as the protective coating of the coal-fired boiler heating surface metal tube wall and other places that need sulfur corrosion resistance and high temperature oxidation resistance.
SP04	——	Ni : ≥63.0% Cu : 28~34% Fe : ≤2.5% Mn : ≤2.0% C : ≤0.3% Si : ≤0.5% S : ≤0.024%	1.6 2.0 3.0	This kind of thermal spraying wire is one of Monel wires. Its main alloy composition is copper and nickel.It is called Monel 400 alloy (UNSN04400 or MCu-28-1.5-1.8 or Ni68Cu28Fe).It is a kind of nickel based alloy material, which has good corrosion resistance in seawater, chemical solvents, ammonia, sulfur, chlorine, hydrogen chloride, sulfuric acid, hydrofluoric acid, hydrochloric acid, phosphoric acid, organic acid and other acidic media, alkaline media, salt and molten salt. Monel 400 alloy has good mechanical properties.It can be used at a wide range of temperatures from low temperature to high temperature,and it also has good weldability and medium/high strength. It is mainly used in the fields of Petroleum Chemistry, marine chemistry, etc. It can be used to manufacture all kinds of heat exchange equipment, boiler feed water heater, petrochemical pipeline, vessel, tower, tank, valve, pump, reactor, shaft, etc.
SP05	——	——	1.6 2.0 3.0	It is a kind of Martensitic stainless steel wire, whose chemical composition can be designed and manufactured to be similar to 1Cr13, 2Cr13 or 3Cr13. It is mainly used for coating and repairing worn parts such as shafts.
SP06	——	——	1.6 2.0 3.0	It is a kind of Austenitic stainless steel wire,whose chemical composition can be designed and manufactured to be similar to 304,316 or 316L.It is mainly used for spraying and protecting the corrosion prone parts such as paper dryers.

Hardness conversion table of HV, HB, HRC

Tensile strength Rm (N/mm²)	Vickers hardness HV	Brinell hardness HB	Rockwell hardness HRC
250	80	76.0	—
270	85	80.7	—
285	90	85.2	—
305	95	90.2	—
320	100	95.0	—
335	105	99.8	—
350	110	105	—
370	115	109	—
380	120	114	—
400	125	119	—
415	130	124	—
430	135	128	—
450	140	133	—
465	145	138	—
480	150	143	—
490	155	147	—
510	160	152	—
530	165	156	—
545	170	162	—
560	175	166	—
575	180	171	—
595	185	176	—
610	190	181	—
625	195	185	—
640	200	190	—
660	205	195	—
675	210	199	—
690	215	204	—
705	220	209	—
720	225	214	—
740	230	219	—
755	235	223	—
770	240	228	20.3
785	245	233	21.3
800	250	238	22.2
820	255	242	23.1
835	260	247	24.0
850	265	252	24.8
865	270	257	25.6
880	275	261	26.4
900	280	266	27.1
915	285	271	27.8
930	290	276	28.5
950	295	280	29.2
965	300	285	29.8
995	310	295	31.0
1030	320	304	32.2
1060	330	314	33.3
1095	340	323	34.4

Tensile strength Rm (N/mm²)	Vickers hardness HV	Brinell hardness HB	Rockwell hardness HRC
1125	350	333	35.5
1115	360	342	36.6
1190	370	352	37.7
1220	380	361	38.8
1255	390	371	39.8
1290	400	380	40.8
1320	410	390	41.8
1350	420	399	42.7
1385	430	409	43.6
1420	440	418	44.5
1455	450	428	45.3
1485	460	437	46.1
1520	470	447	46.9
1555	480	(456)	47.7
1595	490	(466)	48.4
1630	500	(475)	49.1
1665	510	(485)	49.8
1700	520	(494)	50.5
1740	530	(504)	51.1
1775	540	(513)	51.7
1810	550	(523)	52.3
1845	560	(532)	53.0
1880	570	(542)	53.6
1920	580	(551)	54.1
1955	590	(561)	54.7
1995	600	(570)	55.2
2030	610	(580)	55.7
2070	620	(589)	56.3
2105	630	(599)	56.8
2145	640	(608)	57.3
2180	650	(618)	57.8
	660		58.3
	670		58.8
	680		59.2
	690		59.7
	700		60.1
	720		61.0
	740		61.8
	760		62.5
	780		63.3
	800		64.0
	820		64.7
	840		65.3
	860		65.9
	880		66.4
	900		67.0
	920		67.5
	940		68.0

Application Scenarios