چند نکته برای استفاده بهتر از این فهرست:

- فهرست ها قابل جست و جو هستند، برای پیدا کردن محصول مورد نظر از نوار ابزار بالای صفحه روی باکس "Find" کلیک کنید و عبارت مورد مورد نظرتان را در آن وارد کرده و دکمه "Enter" را روی کیبرد فشار دهید. برای رفتن به نتایج بعدی دوباره کلید "Enter" را فشار دهید.



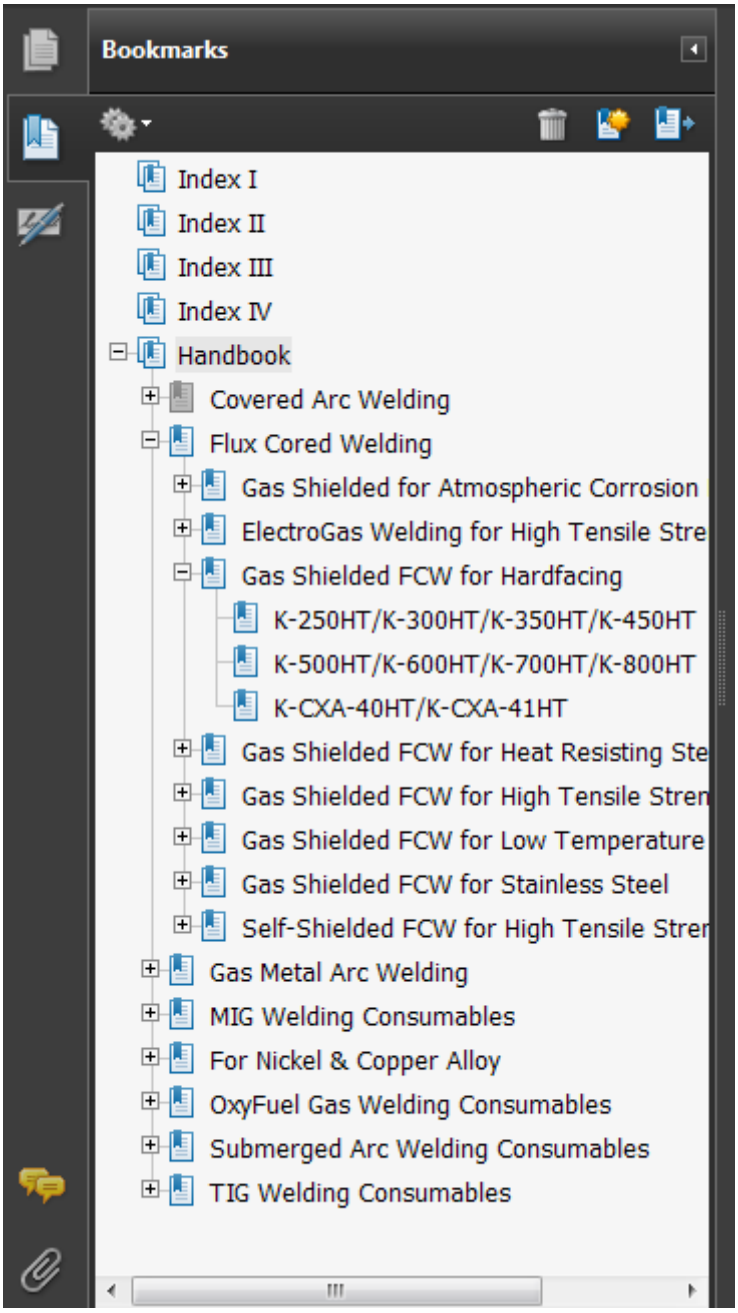
- برای دیدن Datasheet هر محصول در جدول، روی آن کلیک کنید تا صفحه آن محصول باز شود.

همچنین میتوانید از پنل Bookmarks دسته بندی محصولات را مشاهده کنید و محصولات را به راحتی و با دقت پیدا کنید.

اگر این پنل باز نبود کافیست از سمت چپ صفحه روی آیکون  کلیک کنید تا باز شود.

- برای مشاهده راحت تر صفحه ها و بزرگتر یا کوچکتر کردن اندازه آنها از این آیکون ها استفاده کنید:





Covered Arc Welding Consumables

الکترود های جوشکاری روپوش دار

For Carbon Steel

برای فولاد های کربنی

KISWEL Code	AWS
KI-101LF	E6019
KT-303	-
KCL-10	E6010
KCL-11	E6011
K-6012	E6012
KR-3000	E6013
KR-3000V	E6013
KH-500LF	E7016
KH-500VLF	E7048
KH-500W	E7016
KH-500T	E7016
K-6022	E6022
KF-300LF	E6027

For High Tensile Strength Steel

برای فولاد های با استحکام کشش بالا

KISWEL Code	AWS
K-7014	E7014
K-7024	E7024
KK-50LF	E7016
KK-55	E8016-G
KK-60	E9016-G
KK-70	E10016-G
KK-80	E11016-G
K-7018	E7018
K-7028LF	E7028
K-8018	E8018-G
K-9018M	E9018-M
K-10018M	E10018-M
K-11018M	E11018-M
K-12018M	E12018-M
K-7010G	E7010-G
K-8010G	E8010-G

For cast iron

برای چدن

KISWEL Code	AWS
KL-100	-
KCF-50	(ESt)
KFN-50	ENiFe-Cl
KSN-100	ENi-Cl

For Atmospheric Corrosion Resisting steel

برای فولاد های مقاوم در برابر خوردگی جوی

KISWEL Code	AWS
KW-50V	E7016-G
KW-50G	E7016-G
KW-60G	E8016-G
KW-50WH	-
KW-8018W	E8018-W2

For low temperature service steel

برای فولادهای بکار رفته در محیط های با دمای پایین

KISWEL Code	AWS
KK-50N	DL5016-4A0
KK-50NN	DL5016-6A1
K-8016C1	DL5016-6P2
K-8016C2	DL5016-6P3
K-7018N	E7018-1
K-8018C1	E8018-C1
K-8018C2	E8018-C2
K-8018C3	E8018-C3

For Hardfacing

برای سخت کاری فولاد ها

KISWEL Code	AWS
KM-100	-
KM-100C	-
KM-300R	-
KM-250	-
KM-300	-
KM-350	-
KM-500	-
KM-700	-
KM-800	-
KM-900	-
KM-11Cr	-
KBH-2	-
KOSPEL-600H	-
KM-13CrM	-
KSB-2	-
KOSPEL-800R	-
KM-1000	-
KQD-600	-

For Stainless Steel

برای فولاد های ضدزنگ

KISWEL Code	AWS
KST-307-15	E307-15
KST-309Mo-15	E309Mo-15
KST-308	E308-16
KST-308-15	E308-15
KST-308L	E308L-16
KST-308L-15	E308L-15
KST-309	E309-16
KST-309-15	E309-15
KST-309L	E309L-16
KST-309L-15	E309L-15
KST-309Mo	E309Mo-16
KST-309MoL	E309MoL-16
KST-310	E310-16
KST-312	E312-16
KST-316	E316-16
KST-316-15	E316-15
KST-316L	E316L-16
KST-316L-15	E316L-15
KST-317	E317-16
KST-317L	E317L-16
KST-318	E318-16
KST-347	E347-16
KST-347L	E347L-16
KST-410	E410-16
KST-430	E430-16
KST-308Mo	E308Mo-16
KST-2209	E2209-16

For Heat Resisting Steel

برای فولاد های مقاوم در درجه حرارت های بالا

KISWEL Code	AWS
K-7010A1	E7010-A1
K-7016A1	E7016-A1
K-8016B1	E8016-B1
K-8016B2	E8016-B2
K-9016B3	E9016-B3
K-502	E502-16
K-502-15	E502-15
K-505	E505-16
K-505-15	E505-15
K-7018A1	E7018-A1
K-88018B2	E8018-B2
K-9018B3	E9018-B3

Flux Cored Arc Welding Wires

سیم جوش های توپودری

Gas shielded FCW for high tensile strength steel

با گاز محافظ برای فولادهای با کشش استحکام بالا

KISWEL Code	AWS
K-71T	E71T-1
K-71TM	E71T-1M
K-70TB	E70T-5M
K-70T	E70T-1/-1M
K-70ST	E70T-1
KX-100	E70C-3C
KX-70CM	E70C-3M
KX-706M	E70C-6M
KX-200	E70T-1
KX-200H	E70T-1
K-61T	E61T-G
K-71TLF	E71T-1/ -1M
K-71TB	E71T-5/-5M
K-55T	-
KX-55	-
K-81T	E81T1-Ni1
K-82T	E81T1-Ni2
KX-300	E80T1-Ni1
K-110TK3	E110T1-K3
K-81TM	E81T1-Ni1M
K-80ST	E80T1-NI1C
K-82TM	E81T1-NI2M
K-115TK4M	E110T1-K3
K-91T	E91T-G

Gas shielded FCW for stainless steel

با گاز محافظ برای فولاد های ضد زنگ

KISWEL Code	AWS
K-308T	E308T0-1/-4
K-308LT	E308LT1-1/-4
K-309T	E309T0-1/-4
K-309LT	E309LT1-1/-4
K-309LMT	EC309L
K-309MoLT	E309LMoT1-1
K-312T	E312T1-1
K-316T	E316T0-1/-4
K-316LT	E316LT1-1/-4
K-317LT	E317LT1-1
K-329T	E2209T1-1/4
K-347T	E347T1-1
K-409TiT	EC409
K-410T	E410T0-1/-4
K-410NiMoT	E410NiMoT0-4
K-430T	E430T0-G
K-436T	-
K-439T	-
K-309LF	E309LT0 -1/-4
K-316LF	E316LT0-1/-4
K-409TiC	EC409
K-308HT	E308HT1-1/-4
K-308LS	E308LT1-1/-4
K-316LS	E316LT1-1
K-329TE	-
K-325T	E2553T0
K-430LNb	-
K-308LF	E308LT0-1/-4

Gas shielded FCW For heat resisting steel

با گاز محافظ برای فولاد های مقاوم در حرارت بالا

KISWEL Code	AWS
K-81TA1	E81T1-A1
K-81TB2	E81T1-B2
K-91TB3	E91T1-B3
K-91TB9	-
K-91TB9	E91T1-B9M
K-101TB9	E101T1-B9M

Gas shielded FCW for hardfacing

با گاز محافظ برای سخت کاری فولاد

KISWEL Code	AWS
K-250HT	-
K-300HT	-
K-350HT	-
K-450HT	-
K-500HT	-
K-600HT	-
K-700HT	-
K-800HT	-
K-CXA-40HT	-
K-CXA-41HT	-

Self-Shielded FCW for high tensile strength steel

سیم های توپودری خود-محافظ برای فولادهای با استحکام کشش بالا

KISWEL Code	AWS
K-NGS10	E1T-10
K-NGS11	E71T-11
K-NGS	E71T-GS
K-NGS4	E70T-4

Gas shielded FCW For atmospheric corrosion resisting steel

برای فولاد های مقاوم در برابر خوردگی جوی

KISWEL Code	AWS
K-71TW	E81T1-W2
K-81TW	E81T1-W2

Gas Shielded FCW For low temperature service steel

با گاز محافظ برای فولادهای بکار رفته در محیط های با دمای پایین

KISWEL Code	AWS
K-80TK2	E80T1-K2
K-81TK2	E81T1-K2
K-71UT	E71T-1/-9J
K-71TSR	E71T-12J H4
K-81TSR	E81T1-K2
K-71TP	E71T-1C/-1M-12C/-12M
K-9TK2	E91T1-K2C

Electrogas welding for high tensile strength steel

جوش الکتروگاز برای فولاد های با مقاومت بالا

KISWEL Code	AWS
K-EG2	EG70T-2
K-EG3	EG70T-2

For Corrosion Resisting Steel againt sulfic acid

برای استیل های مقاوم در مقابل سولفیک اسید

KISWEL Code	AWS
K-71TS	-

MAG Metal Arc Welding Wires

سیم های جوشکاری با روش گاز محافظ MAG

For heat-resisting steel برای فولادهای مقاوم در حرارت های بالا

KISWEL Code	AWS
KC-80SB2	ER80S-B2
KC-90SB3	ER90S-B3
KC-80D2	ER80S-D2

For high tensile strength steel برای فولادهای با استحکام کششی بالا
steel

KISWEL Code	AWS
KC-25	ER70S-3
KC-25M	ER70S-3
KC-26	ER70S-G
KC-27	ER70S-G
KC-28	ER70S-6
KC-70S2	ER70S-2
ZO-55	ER70S-G
ZO-26	ER70S-G
ZO-28	ER70S-6
ZO-27	ER70S-G
ZO-90	ER90S-G
ZH-90	ER90S-G
ZH-100	ER100S-1/-G
ZO-60	ER80S-G

TIG Welding Consumables

مواد جوشکاری با روش قوس تنگستن TIG

For strength steel برای فولادهای با استحکام بالا

KISWEL Code	AWS
T-2209	ER2209
T-308	ER308
T-308L	ER308L
T-308LSi	ER308LSi
T-309	ER309
T-309L	ER309L
T-309LSi	ER309LSi
T-310	ER310
T-312	ER312
T-316	ER316
T-316L	ER316L
T-316LSi	ER316LSi
T-317L	ER317L
T-347	ER347
T-410	ER410
T-430	ER430
T-420	ER420
T-309LMo	ER309LMo
T430LNb	-
T-308H	ER308H

For high tensile strength steel برای فولادهای با استحکام کششی بالا
steel

KISWEL Code	AWS
T-50G	ER70S-G
T-53	ER70S-3
T-70S2	ER70S-2
T-50	ER70S-6

For heat-resisting steel برای فولادهای مقاوم در حرارت های بالا

KISWEL Code	AWS
T-80SB2	ER80S-B2
T-90SB3	ER90S-B3
T-80D2	ER80S-D2

Submerged Arc Welding Consumables

مواد جوشکاری زیرپودری

For high tensile strength steel برای فولادهای با استحکام کششی بالا
steel

KISWEL Code	AWS
EF-100H × KD-60	F8A(P)4-EA3-G
EF-260×KD-60	F8A(P)6-EA3-G
EF-200V×KD-50	F7A(P)6-EH14
EF-200 x KD-40	F7A(P)4-EL8/12
EF-200K × KD-42	F7A(P)6-EM12K
EF-100 × KD-50	F7A(P)2-EH14
EF-100S×KD-42	F7A(P)2-EM12K
EF-100H x KD-50	F7A(P)2-EH14
G-50 x KD-50	F7A2-EH14
G-60 x KD-50	F7A2-EH14

For Heat Resisting Steel برای فولاد های مقاوم در درجه حرارت های بالا

KISWEL Code	AWS
EF-200H/KD-B2	F8P0-EB2-B2
EF-200H/KD-60	F8 PO-EA3-A3

For low temperature service steel برای فولادهای بکار رفته در محیط های با دمای پایین

KISWEL Code	AWS
EF-200LT/KD-60	F8A(P)8-EA3-G
EF-200LT/KD-50	F7A(P)8-EH14

Oxyfuel Gas Welding Consumables

مواد جوشکاری در روش گازی Oxyfuel

For Carbon Steel

برای فولادهای کربنی

KISWEL Code	AWS
T-40	R45

Nickel Alloy & Copper Alloy

پایه نیکل و مس

Covered arc welding consumables

الکترودهای جوشکاری روپوش دار

KISWEL Code	AWS
KW-A690	ENiCrFe-7
KNCF-3	ENiCrFe-3
KW-A625	ENiCrMo-3

TIG welding consumables

مواد جوشکاری با روش قوس تنگستن TIG

KISWEL Code	AWS
KW-TCuNi	ERCuNi
KW-T617	ERNiCrCoMo-1
KW-TCuNi9	-
KW-T61	ERNi-1
KW-T82	ERNiCr-3
KW-T625	ERNiCrMo-3
KW-T276	ERNiCrMo-4
KW-T690	ERNiCrFe-7
KW-T60	ERNiCu-7

MIG welding consumables

مواد جوشکاری با روش گاز محافظ خنثی

KISWEL Code	AWS
KW-MCuNi9	-
KW-MCuAl A1	ERCuAl-A1
KW-M617	ERNiCrCoMo-1
KW-MCuNi	ERCuNi
KW-MCuAl A2	ERCuAl-A2
KW-MCuSi	ERCuSi-A
KW-M61	ERNi-1
KW-M82	ERNiCr-3
KW-M625	ERNiCrMo-3
KW-M276	ERNiCrMo-4
KW-M690	ERNiCrFe-7
KW-M60	ERNiCu-7

MIG welding consumables

سیم های جوشکاری با روش گاز محافظ فعال MIG

KISWEL Code	AWS
M-2209	ER2209
KIS-M307Si	DINX 15CrNiMn 18 8
M-308	ER308
M-308H	ER308H
M-308L	ER308L
M-308LSi	ER308LSi
M-309	ER309
M-309L	ER309L
M-309LSi	ER309LSi
M-310	ER310
M-312	ER312
M-316	ER316
M-316L	ER316L
M-316LSi	ER316LSi
M-317L	ER317L
M-347	ER347
M-410	ER410
M-420	ER420
M-430	ER430
M-430Mo	-
M-430Ti	-
M-309LMo	ER309LMo
M-430LNb	-
M-409Cb	ER347

جدول خلاصه محصولات برای Atmospheric Corrosion Resisting Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KW-50G	E7016-G	DA5016W	DA5016W	Low hydrogen type	Welding of 490N/mm2 class high tensile strength weather-proof steels for vehicles, building and bridges.
KW-50V	E7016-G	DA5016G	DA5016G	Low hydrogen type	Welding of 490N/mm2 class high tensile strength weather-proof steels for vehicles, building and bridges.
KW-60G	E8016-G	DA5816W	DA5816W	Low hydrogen type	Welding of 590N/mm2 class high tensile strength weather-proof steel for vehicles, bridges and other steel structures.
KW-50WH	-	DA5026W	DA5026W	Low hydrogen, iron powder type	Flat and horizontal fillet welding of 490N/mm2 class high tensile strength weather-proof steel for buildings, bridges and other steel structures.
KW-8018W	E8018-W2	-	-	Low hydrogen, iron powder type	Welding of 560N/mm2 class high tensile strength weathering type structural steel for vehicles, bridges and other steel structures.

KW-50G

AWS E7016-G
JIS DA5016W
KS DA5016W

FOR ATMOSPHERIC CORROSION RESISTING STEEL

Typical applications

Welding of 490N/mm² class high tensile strength weathering type structural steels for vehicles, building and bridges.

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent weather-proof property and crack resistance.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cu
0.06	0.46	0.74	0.52	0.63	0.40

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
530 {54}	620 {63}	28	160 {16}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	150~190	180~230	240~280
	V&OH	70~110	120~160	130~170	–

Welding positions



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KW-50V

FOR ATMOSPHERIC CORROSION RESISTING STEEL

AWS E7016-G
JIS DA5016G
KS DA5016G

Typical applications

Vertical-down welding of 490N/mm² class high tensile strength weathering type structural steels for vehicles, building and bridges

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent working efficiency in vertical-down welding.
② Excellent weather-proof property and crack resistance.
③ Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Cu
0.06	0.54	0.86	0.60	0.27

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
440 {45}	540 {55}	32	170 {17}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	V-down	120~160	170~210	220~280

Welding positions



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KW-60G

AWS E8016-G
JIS DA5816W
KS DA5816W

FOR ATMOSPHERIC CORROSION RESISTING STEEL

Typical applications

Welding of 590N/mm² class high tensile strength weathering type structural steel for vehicles, building, bridges and other steel structures

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent weather-proof property and crack resistance.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cu
0.07	0.65	0.90	0.55	0.30	0.36

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-5℃)
530 {54}	590 {60}	24	90 {9}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	150~190	180~230	240~280
	V&OH	70~110	120~160	130~190	–

Welding positions



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KW-50WH

FOR ATMOSPHERIC CORROSION RESISTING STEEL

JIS DA5026W
KS DA5026W

Typical applications

Flat and horizontal fillet welding of 490N/mm² class high tensile strength weathering type structural steel for buildings, bridges and other steel structures

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Extremely high deposition rate and easy slag removal.
② Redry the electrode at 350~400℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cu
0.07	0.30	0.92	0.54	0.53	0.39

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
510 {52}	560 {57}	26	70 {7}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	4.0	5.0	5.5	6.0
Length	(mm)	450	450~550	450~550	450~550
Amp.	F	160~200	200~250	220~270	250~300
	H-Fil				

Welding positions



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پتروجوش پایا
نماینده انحصاری Kiswel

K-8018W

AWS A5.5 E8018-W2

For atmospheric corrosion resisting steel

Typical applications

Welding of 560N/mm² class high tensile strength weathering type structural Steel for vehicles, building, bridges and other steel structures.
(ASTM A67 Gr.1 : A242 Gr. all : A588 Gr. all : A606 Gr. All: A709 Gr. 70W)

Coating

Low hydrogen, iron powder type

Characteristics on Usage

① Excellent weather-proof properties and crack resistance of the deposited weld metal.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cu
0.05	0.47	0.70	0.60	0.69	0.41

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
530 {54}	640 {65}	29	70 {7}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	Flat	70~110	90~130	150~190	180~230
	V-Up	60~90	70~110	120~160	130~170

Welding positions



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جدول خلاصه محصولات برای Carbon Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KI-101LF	E6019	D4301	E4301	Illmenite type	Welding of high pressure boilers, machinery for generating electric power plant, ship hulls, roling stocks,buildings,bridges and other structual fabrications.
KT-303	-	D4303	E4303	Lime titania type	Welding of cars, other vehicles, agicultural machinery, light structural steels and pedestrian bridges.
KCL-10	E6010	D4311	E4311	High cellulose type	Shipbuildings,pressure pipe, tanks wih plain or galvanized surfaces and steel casting repairs.
KCL-11	E6011	D4311	E4311	High cellulose type	Welding of steel sheets, pipes in building and shipbuilding.
K-6012	E6012	D4313	E4313	High titania type	Welding of shells of railway cars, light vehicles and other steel structures and general light structural steels.
KR-3000	E6013	D4313	E4313	High titania type	Welding of all kinds of light constructional work in all positions, including pipe-welding.
KR-3000V	E6013	D4313	E4313	High titania type	Welding of shells of railway vehicles, cars, light vehicles and other steel sheet structures and general light structural steels.
KH-500LF	E7016	D4316	E4316	Low hydrogen type	Welding of strength members of ship hulls and general heavy structural steels, free cutting steels, medium carbon steel, high sulphur steel. Underlying of hardfacing.
KH-500VLF	E7048	D4316	E4316	Low hydrogen type	Vertical-down welding of general structures and strength members of ship construction, machinery, pressure vessels, buildings and bridges.
KH-500W	E7016	D4316	E4316	Low hydrogen type	One-side welding of pipes and general butt join of ships, pressure vessels.
KH-500T	E7016	D4316	E4316	Low hydrogen type	Tack welding of steels of ships, buildings and bridges.
K-6022	E6022	-	-	High iron oxide type	Flat and horizontal fillet welding of sheet metal.
KF-300LF	E6027	D4327	E4327	High iron oxide,iron powder type	Flat and horizontal fillet welding of ship hull constructions, bridges, structural steels for buildings and general structures.

KT-303

JIS D4303
KS E4303

FOR CARBON STEEL

Typical applications

Welding of cars, other vehicles, agricultural machinery, light structural steels and pedestrian bridges.

Coating

Lime titania type.

Characteristics on Usage

① Excellent slag removal.
② Suitable for tack welding and intermittent welding.
③ High welding efficiency and restriking property .
④ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.15	0.37	0.014	0.013

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (0℃)
420 {43}	460 {47}	32	120 {12}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	65~100	100~140	140~190	200~260	250~330
	V&OH	50~90	80~130	110~170	140~210	–

Welding positions



Approved by

ABS, DNV, GL, KR, LR, NK, JIS, KS

FOR CARBON STEEL

AWS E6019
JIS D4301
KS E4301

KI-101LF

Typical applications

Welding of high pressure boilers, machinery for generating electric power plant, ship hulls, rolling stocks, buildings, bridges and other structural fabrications.

Coating

Ilmenite type.

Characteristics on Usage

① Free from pits and good radiographic soundness.
② The most excellent mechanical properties and also suitable for welding of structural steels of heavy section about 25mm thickness.
③ Redry the electrode at 70~100℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.09	0.12	0.48	0.014	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (0℃)
400 {41}	460 {47}	34	120 {12}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	80~135	135~190	180~240	250~310
	V&OH	50~75	60~120	100~160	135~210	–

Welding positions



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KCL-11

AWS E6011
JIS D4311
KS E4311

FOR CARBON STEEL

Typical applications
Welding of steel sheets, pipes in building and shipbuilding.

Coating
High cellulose type.

Characteristics on Usage
① As the welding in poor groove fit up and vertical-down welding can be performed easily, it is used in all position welding of pipes.
② Good mechanical properties and the weld metal meets requirement X-ray.
③ Redry the electrode at 70~80℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.37	0.66	0.015	0.013

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
410 {42}	500 {51}	24	50 {5}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	50~80	70~110	110~150	160~200
	V&OH	40~70	60~100	90~130	140~170

Welding positions



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KCL-10

AWS E6010
JIS D4311
KS E4311

FOR CARBON STEEL

Typical applications
Shipbuildings, pressure pipe, tanks with plain or galvanized surfaces and steel casting repairs.

Coating
High cellulose type.

Characteristics on Usage
① Good penetration combined with freedom from lack of fusion makes this electrode an excellent choice for pipeline welding.
② Gives high ductility root weld.
③ Easy slag removal.
④ Redry the electrode at 70~80℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.10	0.20	0.47	0.014	0.012

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-29℃)
420 {43}	500 {51}	24	50 {5}

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	50~80	70~110	110~150	160~200
	V&OH	40~70	60~100	90~130	140~170

Welding positions



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KR-3000

AWS E6013
JIS D4313
KS E4313

FOR CARBON STEEL

Typical applications

Welding of all kinds of light constructional work in all positions, including pipe-welding.

Coating

High titania type.

Characteristics on Usage

① Excellent striking and restriking properties.
② Excellent slag removal and arc transfer.
③ Excellent bead appearance without undercut.
④ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.32	0.45	0.015	0.012

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
430 {44}	480 {49}	29	70 {7}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~100	80~130	130~180	160~220	210~280
	V&OH	60~90	80~120	90~140	120~190	–

Welding positions



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FOR CARBON STEEL

K-6012

AWS E6012
JIS D4313
KS E4313

Typical applications

Welding of shells of railway vehicles, cars, light vehicles and other steel structures and general light structural steels.

Coating

High titania type.

Characteristics on Usage

① Weld metal has a good bead appearance.
② The electrode diameter less than 3.2mm can be easily used in vertical-down welding.
③ Good X-ray quality.
④ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.09	0.26	0.46	0.015	0.012

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
420 {43}	480 {49}	26	90 {9}

Sizes available and recommended currents (AC or DC ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~95	80~120	130~170	180~230	240~300
	V&OH	40~95	70~110	100~140	120~160	–

Welding positions



Approved by

KH-500LF

AWS E7016
JIS D4316
KS E4316

FOR CARBON STEEL

Typical applications

Welding of strength members of ship hulls and general heavy structural steels, free cutting steels, medium carbon steels, high sulphur steel.
Underlaying of hardfacing.

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent crack resistance even in the welding of difficult-to-weld steels.
② Excellent mechanical properties and radiographic soundness.
③ Easy slag removal.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.46	0.97	0.012	0.009

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
460 {47}	540 {55}	34	140 {14}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~230	250~300
	V&OH	50~80	80~110	120~160	160~200	–

Welding positions



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KR-3000V

FOR CARBON STEEL

AWS E6013
JIS D4313
KS E4313

Typical applications

Welding of shells of railway vehicles, cars, light vehicles and other steel sheet structures and general light structural steels.

Coating

High titania type.

Characteristics on Usage

① In vertical-down welding, excellent bead appearance can be obtained by taking a little bit higher welding amperage and holding the electrode at the illustrated angles.
② Welding under excessive amperage conditions can cause the deterioration of radiographic soundness and other defects.



Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.26	0.45	0.012	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
430 {44}	480 {49}	28	50 {5}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	V-down	80~120	100~150	150~200	210~250

Welding positions



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KH-500W

AWS E7016
JIS D4316
KS E4316

FOR CARBON STEEL

Typical applications
One-side welding of pipes and general butt joint of ships, pressure vessels,

Coating
Low hydrogen type.

Characteristics on Usage
① Specifically designed for one-side welding of pipes and general structures.
② Extremely good usability in flat positions.
③ Easy slag removal.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.58	0.90	0.013	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
460 {47}	560 {57}	32	80 {8}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	4.5	5.0
Length	(mm)	350	350	400	400	400
Amp.	F	30~70	60~110	90~140	120~160	130~180
	OSW					

Welding positions


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KH-500VLF

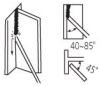
FOR CARBON STEEL

AWS E7048
JIS D4316
KS E4316

Typical applications
Vertical-down welding of general structures and strength members of ship construction, machinery, pressure vessels, buildings and bridges.

Coating
Low hydrogen type.

Characteristics on Usage
① Fully satisfactory working efficiency in vertical- down welding.
② Excellent mechanical properties and crack resistance.
③ Easy slag removal.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.



Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.48	0.90	0.013	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
440 {45}	550 {56}	33	90 {9}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	4.5	5.0	5.5
Length	(mm)	400	450	450	450	450
Amp.	V-down	120~160	150~210	180~240	220~280	260~330

Welding positions


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K-6022 AWS E6022

FOR CARBON STEEL

Typical applications
Flat and horizontal fillet welding of sheet metal.

Coating
High iron oxide type.

Characteristics on Usage
① A high iron oxide type electrode for single pass.
② Highly efficient welding.
③ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.13	0.09	1.13	0.017	0.011

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
410 {42}	450 {46}	26

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F V&OH	60~110	80~140	160~200	180~240	260~320

Welding positions


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FOR CARBON STEEL

KH-500T AWS E7016 JIS D4316 KS E4316

Typical applications
Tack welding of steels of ships, buildings and bridges.

Coating
Low hydrogen type.

Characteristics on Usage
① Good arc restriking properties.
② Designed for tack welding and intermittent welding.
③ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.11	0.30	0.62	0.014	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
450 {46}	550 {56}	29	70 {7}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	All	90~150	140~200	190~240

Welding positions


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FOR CARBON STEEL

AWS E6027
JIS D4327
KS E4327

KF-300LF

Typical applications

Flat and horizontal fillet welding of ship hull constructions, bridges, structural steels for buildings and general structures.

Coating

High iron oxide, iron powder type.

Characteristics on Usage

① Beautiful bead appearance without undercut and easy slag removal.
② Extremely high efficient welding because of high deposition rate by much iron powder.
③ Redry the electrode at 120~150℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.35	0.86	0.016	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
410 {42}	470 {48}	32	60 {6}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	4.0	4.5	5.0	5.5	6.0	6.4
Length	(mm)	550	550	550	550	550	550
			700	700	700	700	700
Amp.	F	150~180	180~200	180~230	220~270	250~290	280~310
	H-Fil						
각장	(mm)	5.0~5.5	5.5~6.0	6.0~6.5	6.5~7.0	7.0~8.0	7.5~8.5

Welding positions




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جدول خلاصه محصولات برای Heat-Resisting Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
K-7010A1	E7010-A1	-	-	High cellulose type	Welding of C-0.5% Mo steel pipes used for high pressure, high temperature steam service, structural steel and plates or castings. Welding of long distance pipe lines.
K-7016A1	E7016-A1	DT1216	DT1216	Low hydrogen type	Welding of alloys used for high temperature service such as C-Mo steel pipes(STPA 12,A335-P1), boiler and heat exchanger steel tubes(STBA 12, A208-T1), rolled steels(A204-A,B,C), cast steel(A217-WCi) and forged steels(A182-F1, A336-F1).
K-8016B1	E8016-B1	-	-	Low hydrogen type	Welding of 0.5%Cr-0.5Mo steel used for high temperature service and high pressure boilers, chemical equipment and Oil refining plants.(A335-P2,A213-T2).
K-8016B2	E8016-B2	DT2316	DT2316	Low hydrogen type	Welding of 1.25%Cr-0.5%Mo steel used for super-heater tubes, steam pipes and heaters of boilers for thermoelectric power plant and equipment of Oil refining industries. Welding of piping steel, boiler and heat exchanger steel tubes, rolled steel, cast steel and forged steel.
K-9016B3	E9016-B3	DT2416	DT2416	Low hydrogen type	Welding of 2.25% Cr-1%Mo steel used for super-heat tubes, and steam pipes of boilers for electric power plant and equipment for oil refining industries and high temperature synthetic chemical industries. Welding of piping steels, boiler, and heat exchanger steel tubes, rolled steels, cast steels and forged steels.
K-502	E502-16	DT2516	DT2516	Low hydrogen type	Welding of heat treated high tensile strength steel for aircraft parts, such as SAE4130. Welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries.
K-502-15	E502-15	DT2516	DT2516	Low hydrogen type	Welding of heat treated high tensile strength steel for aircraft parts, such as SAE 4130. Welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries.
K-505	E505-16	DT2616	DT2616	Low hydrogen type	Welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipment.
K-505-15	E505-15	DT2616	DT2616	Low hydrogen type	Welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipment.
K-7018A1	E7018-A1	-	-	Low hydrogen, iron powder type	Welding of high strength low alloy steel of 490N/mm2 minimum yield point and 0.5%Mo steel of pressure piping, casting and general fabrication of pressure vessel.
K-88018B2	E8018-B2	DT2318	DT2318	Low hydrogen, iron powder type	Welding of 1.25%Cr-0.5%Mo steel used for steam pipes of boilers, oil refining, castings and pressure vessels.
K-9018B3	E9018-B3	DT2418	DT2418	Low hydrogen, iron powder type	Welding of 2.25%Cr-1%Mo steel used for steam pipes of boilers, oil refining, castings and pressure vessels.

K-7010A1

AWS E7010-A1

FOR HEAT-RESISTING STEEL

Typical applications

Welding of C-0.5%Mo steel pipes used for high pressure, high temperature steam service, structural steel and plates or castings.
Welding of long distance pipe lines.

Coating

High cellulose type.

Characteristics on Usage

① Extremely good radiographic soundness and mechanical properties.
② Not to use the currents exceeding the recommended currents
③ Preheat at 100~200℃ and postheat treat at 620~680℃.
④ Redry the electrode at 70~80℃ for 30 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Mo
0.09	0.14	0.43	0.49

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
440 {45}	550 {56}	29	620℃×1hr. S·R

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	50~75	70~110	110~150	160~200
	V&OH	30~70	60~100	90~130	130~170

Welding positions



Approved by

ABS

FOR HEAT-RESISTING STEEL

AWS E7016-A1
JIS DT1216
KS DT1216

K-7016A1

Typical applications

Welding of alloys used for high temperature service such as C-Mo steel pipes(STPA 12, A335-P1), boiler and heat exchanger steel tubes(STBA 12, A209-T1, A161-T1), rolled steels(A204-A,B,C), cast steel(A217-WC1) and forged steels(A182-F1, A336-F1)

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 100~200℃ and postheat treat at 620~680℃.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Mo
0.07	0.54	0.83	0.52

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	560 {57}	650 {66}	31	620℃×1hr. S·R
450℃	370 {38}	520 {53}	20	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	55~85	90~130	140~190	180~250	240~300
	V&OH	50~80	80~120	110~170	130~200	–

Welding positions



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K-8016B1

AWS E8016-B1

FOR HEAT-RESISTING STEEL

Typical applications

Welding of 0.5%Cr-0.5%Mo steel used for high temperature high pressure boilers, chemical equipments and oil refining plants.(A335-P2, A213-T2).

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent crack resistance because of low hydrogen contents.
② Preheat at 150~250℃ and postheat treat at 620~680℃.
③ Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.07	0.51	0.81	0.51	0.49

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	590 {60}	670 {68}	26	690℃×1hr. S·R
450℃	500 {51}	540 {55}	23	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~85	90~130	130~180	190~240	250~320
	V&OH	40~80	80~120	110~160	–	–

Welding positions



Approved by

FOR HEAT-RESISTING STEEL

AWS E8016-B2
JIS DT2316
KS DT2316

K-8016B2

Typical applications

Welding of 1.25%Cr-0.5%Mo steel used for super-heater tubes, steam pipes and heaters of boilers for thermoelectric power plant and equipments of oil refining industries.
Welding of piping steel, boiler and heat exchanger steel tubes, rolled steel, cast steel and forged steel.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 150~300℃ and postheat treat at 670~730℃.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.06	0.47	0.65	1.31	0.52

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	570 {58}	650 {66}	26	690℃×1hr. S·R
450℃	450 {46}	540 {55}	23	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	80~120	130~180	180~230	240~300
	V&OH	50~80	75~110	100~160	–	–

Welding positions



Approved by

K-9016B3

AWS E9016-B3
JIS DT2416
KS DT2416

FOR HEAT-RESISTING STEEL

Typical applications

Welding of 2.25% Cr-1%Mo steel used for super-heater tubes, and steam pipes of boilers for electric power plant and equipments for oil refining industries and high temperature synthetic chemical industries.
Welding of piping steels, boiler, and heat exchanger steel tubes, rolled steels, cast steels and forged steels.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 200~350℃ and postheat treat at 680~730℃.
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.08	0.45	0.78	2.37	1.03

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	620 {63}	710 {72}	24	690℃×1hr. S·R
450℃	500 {51}	550 {56}	10	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	F	60~100	90~130	130~190	190~240
	V&OH	60~90	75~115	110~170	–

Welding positions



Approved by

K-502

AWS E502-16
JIS DT2516
KS DT2516

FOR HEAT-RESISTING STEEL

Typical applications

Welding of heat treated high tensile strength steel for aircraft parts, such as SAE 4130.
Welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 250~350℃ and postheat treat at 730~760℃ because of high self-hardening properties of the deposited weld metal.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.06	0.43	0.57	4.98	0.51

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	420 {43}	540 {55}	33	850℃×1hr. S·R
500℃	380 {39}	420 {43}	6	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~90	80~120	120~160	160~210	210~260
	V&OH	50~80	70~110	90~130	–	–

Welding positions



Approved by

K-502-15

AWS E502-15
JIS DT2516
KS DT2516

FOR HEAT-RESISTING STEEL

Typical applications

Welding of heat treated high tensile strength steel for aircraft parts, such as SAE 4130.
Welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 250~350℃ and postheat treat at 730~760℃ because of high self-hardening properties of the deposited weld metal.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.08	0.35	0.84	5.25	0.55

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
450 {46}	580 {59}	31	850℃×1hr. S·R

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~90	75~115	120~160	160~210	210~260
	V&OH	50~80	70~110	90~130	–	–

Welding positions



Approved by

K-505

AWS E505-16
JIS DT2616
KS DT2616

FOR HEAT-RESISTING STEEL

Typical applications

Welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipments.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 250~400℃ and postheat treat at 730~780℃ because of high self-hardening property of the deposited weld metal.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.08	0.74	0.98	8.48	0.90

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	480 {49}	570 {58}	30	850℃×1hr. S·R
500℃	440 {45}	490 {50}	8	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	55~90	75~115	120~160	160~220	210~260
	V&OH	50~60	70~110	90~150	–	–

Welding positions



Approved by

K-505-15

AWS E505-15
JIS DT2616
KS DT2616

FOR HEAT-RESISTING STEEL

Typical applications

Welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipments.

Coating

Low hydrogen type.

Characteristics on Usage

① Preheat at 250~400℃ and postheat treat at 730~780℃ because of high self-hardening property of the deposited weld metal.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.08	0.45	0.88	8.86	0.90

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
470 {48}	540 {55}	33	850℃×1hr. S·R

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	80~120	120~160	160~220	210~260
	V&OH	50~60	70~110	90~150	–	–

Welding positions



Approved by

FOR HEAT-RESISTING STEEL

AWS E7018-A1

K-7018A1

Typical applications

Welding of high strength low alloy steel of 450N/mm² minimum yield point and 0.5%Mo steel of pressure piping, casting and general fabrication of pressure vessel.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① High deposition rate in all positions.
② Preheat at 100~200℃ and postheat treat at 620~680℃.
③ Redry the electrode at 350~400℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Mo
0.06	0.49	0.72	0.53

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	590 {60}	680 {69}	28	620℃×1hr. S·R
500℃	500 {51}	540 {55}	22	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	80~120	130~180	190~240	240~300
	V&OH	50~80	70~110	100~160	–	–

Welding positions



Approved by

K-8018B2

AWS E8018-B2
JIS DT2318
KS DT2318

FOR HEAT-RESISTING STEEL

Typical applications

Welding of 1.25%Cr-0.5%Mo steel used for steam pipes of boilers, oil refining industries, castings and pressure vessels for high temperature service, high temperature synthetic chemical industries.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Owing to the high working efficiency, it is the most suitable for welding thick steam pipes and repairing cast steels.
② Preheat at 150~300℃ and postheat treat at 670~730℃
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.06	0.61	0.70	1.32	0.55

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	590 {60}	670 {68}	25	690℃×1hr. S·R
450℃	470 {48}	550 {56}	17	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	65~95	90~130	130~190	190~250	250~300
	V&OH	60~90	80~120	110~170	–	–

Welding positions



Approved by

ABS, DNV, LR

K-9018B3

AWS E9018-B3
JIS DT2418
KS DT2418

FOR HEAT-RESISTING STEEL

Typical applications

Welding of 2.25%Cr-1%Mo steel used for main steam pipes of boilers for electric power plant and marine use, equipments for oil refining industries and high temperature synthetic industries.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Owing to the high working efficiency, it is the most suitable for welding thick main pipes and repairing cast steel.
② Preheat at 200~350℃ and postheat treat at 680~730℃.
③ Redry the electrodes at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.08	0.50	0.77	2.25	1.02

Typical mechanical properties of all-weld-metal

Temp.	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
R.T	680 {69}	750 {77}	21	690℃×1hr. S·R
450℃	500 {51}	550 {56}	9	

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	F	60~100	90~130	140~190	190~250
	V&OH	60~90	80~120	110~170	–

Welding positions



Approved by

جدول خلاصه محصولات برای High Tensile Strength Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
K-7014	E7014	-	-	Iron powder, titania type	All position fillet welding of ship structures, bridges, structural steels for buildings and general structures.
K-7024	E7024	D4324	E4324	Iron powder, titania type	Flat and horizontal fillet welding of ship structures, bridges, structural steels for buildings and general structures.
KK-50LF	E7016	D5016	D5016	Low hydrogen type	Welding of 490N/mm2 class high tensile strength steel in ships, bridges, buildings and pressure vessels.
KK-55	E8016-G	D5316	D5316	Low hydrogen type	Welding of 540N/mm2 class high tensile strength steel of pressure vessels, bridges, penstocks and rails.
KK-60	E9016-G	D5816	D5816	Low hydrogen type	Welding of 540N/mm2 class high tensile strength steel of pressure vessels, penstocks, bridges, vehicles and machineries.
KK-70	E10016-G	D7016	D7016	Low hydrogen type	Welding of 690N/mm2 class high tensile strength steel, yield point is 620N/mm2 of pressure vessels, penstocks and bridges.
KK-80	E11016-G	D8016	D8016	Low hydrogen type	Welding of 790N/mm2 class high tensile strength steel, minimum is 690N/mm2 of pressure vessels, penstocks and bridges.
K-7018	E7018	D5016	D5016	Low hydrogen, iron powder type	Welding of 490N/mm2 class high tensile strength steels of ships, bridges, storage tanks, building, industrial machinery and mining machinery.
K-7028LF	E7028	D5026	D5026	Low hydrogen, iron powder type	Flat and horizontal fillet welding of 490N/mm2 class high tensile strength steel structures, large size steel castings and strength members of ship hulls.
K-8018	E8018-G	D5316	D5316	Low hydrogen, iron powder type	Welding 540N/mm2 class high tensile strength steel of ships, bridges, storage tanks and buildings.
K-9018M	E9018-M	D5816	D5816	Low hydrogen, iron powder type	Welding of 540N/mm2 class high tensile strength steel of pressure vessels, bridges, machinery and penstocks.
K-10018M	E10018-M	D7016	D7016	Low hydrogen, iron powder type	Welding of 690N/mm2 class high tensile strength steel of pressure vessels, bridges, machinery and penstocks.
K-11018M	E11018-M	D8016	D8016	Low hydrogen, iron powder type	Welding of low alloy high tensile strength steels having tensile properties of about 740~790N/mm2 such as HY80, etc.
K-12018M	E12018-M	-	-	Low hydrogen, iron powder type	Welding of 890N/mm2 class high tensile strength steel of pressure vessels, bridges, machinery and penstocks.
K-7010G	E7010-G	-	-	High cellulose sodium type.	Welding of Pressure pipes, general light structural steels, and agricultural machinery.
K-8010G	E8010-G	-	-	High cellulose sodium type.	Welding of 540N/mm2 class high tensile strength steel for butt welding of pipes.

K-7014

AWS E7014

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

All position fillet welding of ship structures, bridges, structural steels for buildings and general structures.

Coating

Iron powder, titania type.

Characteristics on Usage

① Designed for high efficiency in single pass and multiple pass welding.
② Excellent slag removal and good bead appearance.
③ Redry the electrode at 100~130℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.35	0.60	0.015	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
470 {48}	550 {56}	30	80 {8}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~100	90~140	140~200	190~240	250~310
	V&OH	50~90	80~130	110~170	150~200	–

Welding positions



Approved by

ABS, CWB, KR, LR, NK

FOR HIGH TENSILE STRENGTH STEEL

AWS E7024
JIS D4324
KS E4324

K-7024

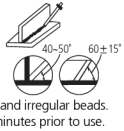
Typical applications

Flat and horizontal fillet welding of ship structures, bridges, structural steels for buildings and general structures.

Coating

Iron powder, titania type.

Characteristics on Usage



① Designed for high efficiency in single pass.
② Quiet and stable arc.
③ Good bead appearance.
④ Easy slag removal, mostly self-releasing.
⑤ Excessive moisture absorption causes undercut and irregular beads.
⑥ Redry the electrode at 100~130℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.35	0.78	0.016	0.012

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
480 {49}	570 {58}	28	70 {7}

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	3.2	4.0	4.5	5.0	5.5	6.0
Length	(mm)	400	450	450	450	450	450
			550	550	550	550	550
				700	700	700	700
Amp.	F H-Fil	100~150	140~190	180~230	200~250	230~270	260~300

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, KR, LR, NK, JIS

K-7010G

AWS E7010-G

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of Pressure pipes, general light structural steels, agricultural machinery.

Coating

High cellulose sodium type.

Characteristics on Usage

① This electrode is characterized by deeply penetrating, forceful, spray type arc.
② Readily removable, thin friable slag
③ This electrode is capable of welding in the vertical position with either uphill or downhill progression
④ The electrode has been designed for use with DCEP.(Reverse polarity)

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0.10	0.56	0.87	0.36	0.30

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
470 {48}	570 {58}	27	40 {4}

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	350	350
Amp.	F	50~80	70~110	110~150	160~200
	V&OH	40~70	60~110	90~130	140~170

Welding positions



Approved by

K-8010G

AWS E8010-G

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 540N/mm² class high tensile strength steel for butt welding of pipes.

Coating

High cellulose sodium type.

Characteristics on Usage

① This electrode is characterized by deeply penetrating, forceful, spray type arc.
② Readily removable, thin friable slag
③ This electrode is capable of welding in the vertical position with either uphill or downhill progression
④ The electrode has been designed for use with DCEP.(Reverse polarity)

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0.10	0.60	0.93	0.42	0.35

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
520 {53}	610 {62}	24	45 {5}

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	350	350
Amp.	F	50~80	70~110	110~150	160~200
	V&OH	40~70	60~110	90~130	140~170

Welding positions



Approved by

KK-50LF

AWS E7016
JIS D5016
KS D5016

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 490N/mm² class high tensile strength steel in ships, bridges, buildings and pressure vessels.

Coating

Low hydrogen type.

Characteristics on Usage

① The most popular electrode for 490N/mm² class high tensile strength steel.
② Excellent usability in all positions and high quality of deposited weld metal.
③ Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.57	1.02	0.015	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
480 {49}	560 {57}	32	140 {14}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~240	250~310
	V&OH	50~80	80~120	110~170	160~200	–

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

KK-55

AWS E8016-G
JIS D5316
KS D5316

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 540N/mm² class high tensile strength steel of pressure vessels, bridges, penstocks and rails

Coating

Low hydrogen type.

Characteristics on Usage

① Good strength property of deposited weld metal.
② Excellent weldability and usability.
③ Satisfactory bead appearance and good slag removal.
④ Excellent radiographic soundness.
⑤ Redry the electrode at 350~400℃ for 30~60minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.08	0.50	1.20	0.014	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
540 {55}	600 {61}	28	130 {13}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~240	250~300
	V&OH	50~80	80~120	110~170	160~200	–

Welding positions



Approved by

KK-60

AWS E9016-G
JIS D5816
KS D5816

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 590N/mm² class high strength low alloy steel of pressure vessels, penstocks, bridges, vehicles and machinery

Coating

Low hydrogen type.

Characteristics on Usage

① Mn-Ni-Mo type deposited weld metal.
② Minimum hydrogen content and very satisfactory crack resistance.
③ Satisfactory radiographic soundness.
④ Good impact value.
⑤ Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0.07	0.58	1.04	0.64	0.26

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)	PWHT
550 {56}	650 {66}	29	140 {14}	As welded
550 {56}	660 {67}	31	150 {15}	620℃ x 1hr. S-R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~230	250~300
	V&OH	50~80	80~110	120~170	160~200	–

Welding positions



Approved by

KK-70

FOR HIGH TENSILE STRENGTH STEEL

AWS E10016-G
JIS D7016
KS D7016

Typical applications

Welding of 690N/mm² class high strength low alloy steel, yield point is 620N/mm² of pressure vessels, penstocks and bridges

Coating

Low hydrogen type

Characteristics on Usage

① Excellent usability and radiographic soundness in all positions.
② Good crack resistance.
③ Redry the electrode at 350~400℃ for 60 minutes prior to use, and store the electrode at 100~150℃ after redrying, keep them away from moisture.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0.08	0.37	1.05	1.87	0.40

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
640 {65}	730 {74}	26	120 {12}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~230	250~300
	V&OH	50~80	80~110	120~170	160~200	–

Welding positions



Approved by

KK-80

AWS E11016-G
JIS D8016
KS D8016

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 790N/mm² class high strength low alloy steel, minimum yield point 690N/mm² of pressure vessels, penstocks and bridges.

Coating

Low hydrogen type.

Characteristics on Usage

① Good crack resistance.
② Satisfactory radiographic soundness and notch toughness.
③ Redry the electrode at 350~400℃ for 60 minutes prior to use, and store the electrode at 100~150℃ after redrying.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.07	0.60	1.10	0.15	1.84	0.43

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
730 {74}	830 {85}	22	120 {12}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~230	250~300
	V&OH	50~80	80~110	120~170	160~200	–

Welding positions



Approved by

K-7018

AWS E7018
JIS D5016
KS D5016

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 490N/mm² class high tensile strength steels of ships, bridges, storage tanks, building, industrial machinery and mining machinery.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Excellent usability with direct current applications.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.57	0.97	0.012	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
480 {49}	570 {58}	30	90 {9}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~100	90~130	130~180	200~250	250~310
	V&OH	50~80	80~120	110~170	160~210	–

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, KR, LR, NK, JIS, KS

K-7028LF

AWS E7028
JIS D5026
KS D5026

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Flat and horizontal fillet welding of 490N/mm² class high tensile strength steel structures, large size steel castings and strength members of ship hulls.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Extremely high deposition rate and good slag removal.
② For application of gravity welding and auto-contact welding.
③ Redry the electrode at 250~300℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.07	0.52	0.98	0.012	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
470 {48}	550 {56}	31	130 {13}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	5.0	5.5	6.0	6.4
Length	(mm)	550,700	550, 700, 900	550, 700, 900	550, 700, 900
Amp.	F H-Fil	200~250	220~280	270~320	290~340

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS

FOR HIGH TENSILE STRENGTH STEEL

AWS E8018-G
JIS D5316
KS D5316

K-8018

Typical applications

Welding of 540N/mm² class high strength low alloy steel of ships, bridges, storage tanks and buildings.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Good mechanical properties and crack resistance of the deposited weld metal.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0.06	0.54	1.08	0.31	0.20

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
490 {50}	590 {60}	28	150 {15}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	140~190	180~230	250~300
	V&OH	50~80	80~110	120~170	160~200	–

Welding positions



Approved by

ABS, JIS

K-9018M

AWS E9018-M
JIS D5816
KS D5816

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of 590N/mm² class high strength low alloy steel of pressure vessels, bridges, machinery and penstocks.

Coating

Low hydrogen, iron powder type

Characteristics on Usage

① Excellent mechanical properties especially in notch toughness.
② Excellent radiographic soundness.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.07	0.51	1.10	0.10	1.58	0.20

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m}(-51℃)
570 {58}	670 {68}	30	90 {9}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~100	90~130	140~190	190~240	250~310
	V&OH	40~80	80~115	110~160	140~170	–

Welding positions



Approved by

K-10018M

FOR HIGH TENSILE STRENGTH STEEL

AWS E10018-M
JIS D7016
KS D7016

Typical applications

Welding of 690N/mm² class high strength low alloy steel of pressure vessels, bridges, machinery and penstocks.

Coating

Low hydrogen, iron powder type

Characteristics on Usage

① Good mechanical properties.
② Excellent slag removal.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.07	0.46	1.35	0.14	1.63	0.28

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m}(-51℃)
640 {65}	750 {77}	29	70 {7}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	130~180	180~240	250~320
	V&OH	80~115	110~170	140~200	–

Welding positions



Approved by

K-11018M

AWS E11018-M
JIS D8016
KS D8016

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of low alloy high strength low alloy steels having tensile properties of about 740~790N/mm² such as HY80, etc.

Coating

Low hydrogen, iron powder type

Characteristics on Usage

① Excellent operational performance in all positions.
② Good impact value at −51℃.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.08	0.41	1.49	0.32	1.86	0.32

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-51℃)
720 {73}	820 {84}	23	60 {6}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~100	90~130	130~180	180~240	250~320
	V&OH	40~90	80~120	110~160	140~200	–

Welding positions



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FOR HIGH TENSILE STRENGTH STEEL

AWS E12018-M

K-12018M

Typical applications

Welding of 890N/mm² class high strength low alloy steel of pressure vessels, bridges, machinery and penstocks.

Coating

Low hydrogen, iron powder type

Characteristics on Usage

① Good mechanical properties of weld metal especially impact value.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.08	0.30	1.46	0.98	1.86	0.41

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-51℃)
800 {82}	950 {97}	20	50 {5}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	70~100	90~130	150~190	180~230	220~300
	V&OH	60~90	70~100	120~160	140~180	–

Welding positions



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جدول خلاصه محصولات برای Stainless Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KST-307-15	E307-15	D307-15	D307-15	Low hydrogen type	Welding of dissimilar steel such as austenitic manganese steel to carbon steel forgings. Joining work-hardenable steels, armor plate, austenitic manganese steels, and Hardfacing of hot working tools, stainless valve steels and carbon steel items that must possess abrasion resistance in cold working.
KST-309Mo-15	E309Mo-15	D309Mo-15	D309Mo-15	Low hydrogen type	Build-up welding of Cr-Mo steel of carbon steel. Welding of AISI(SUS)316 clad or dissimilar steels.
KST-308	E308-16	D308-16	D308-16	Lime titania type	Welding of 18%Cr-8%Ni stainless steel(AISI301,302,304,308).
KST-308-15	E308-15	D308-15	D308-15	Lime titania type	Welding of 18%Cr-8%Ni stainless steel,(AISI 301,302,304,308)
KST-308L	E308L-16	D308L-16	D308L-16	Lime titania type	Welding of low carbon 18%Cr-8%Ni stainless steel.
KST-308L-15	E308L-15	D308L-15	D308L-15	Lime titania type	Welding of low carbon 18%Cr-8%Ni stainless steel.
KST-309	E309-16	D309-16	D309-16	Lime titania type	Welding of 22%Cr-12%Ni stainless steel and heat-resisting castings, clad side of type 304 clad steels. Welding of dissimilar steels such as Cr-Mo steel or carbon steel to stainless steel.
KST-309-15	E309-15	D309-15	D309-15	Lime titania type	Welding of 22%Cr-12%Ni stainless steel and heat-resisting castings, clad side of type 304 clad steels. Welding of dissimilar steels such as Cr-Mo steel or carbon steel to stainless steel.
KST-309L	E309L-16	D309L-16	D309L-16	Lime titania type	Welding of 22%Cr-12Ni steel and heat-resisting castings, clad stainless steel. Welding of dissimilar metal such as carbon steel to stainless steel.
KST-309L-15	E309L-15	D309L-15	D309L-15	Lime titania type	Welding of 22%Cr-12%Ni steel and heat-resisting castings, clad stainless steel. Welding of dissimilar metal such as carbon steel to stainless steel.
KST-309Mo	E309Mo-16	D309Mo-16	D309Mo-16	Lime titania type	Build-up welding of Cr-Mo steel or carbon steel. Welding of AISI(SUS)316 clad steel or dissimilar steels.
KST-309MoL	E309MoL-16	D309MoL-16	D309MoL-16	Lime titania type	Build-up welding of AISI(SUS)316 clad steel or dissimilar steels.
KST-310	E310-16	D310-16	D310-16	Lime titania type	Welding of AISI(SUS) 310S,SCS 18 and clad side of 18%Cr-8%Ni stainless clad steels.
KST-312	E312-16	D312-16	D312-16	Lime titania type	Welding of 29%Cr-9%Ni type cast steels and difficult-to-weld steels. Joint welding and hardfacing of stainless steel and heat-resisting steels.
TENSILE WELD	-	-	-	Lime titania type	Welding of 29%Cr-9%Ni type cast steels and difficult-to-weld steels. Joint welding and hardfcing of stainless steel and heat-resisting steels.
KST-316	E316-16	D316-16	D316-16	Lime titania type	Welding of 18%Cr-12%Ni-Mo stainless steels(AISI316). Welding of dissimilar steels.
KST-316-15	E316-15	D316-15	D316-15	Lime titania type	Welding of 18%Cr-12%Ni-Mo stainless steel AISI(SUS) 316. Welding of dissimilar steels.
KST-316L	E316L-16	D316L-16	D316L-16	Lime titania type	Welding of low carbon 18%Cr-12%Ni-Mo stainless steels, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.
KST-316L-15	E316L-15	D316L-15	D316L-15	Lime titania type	Welding of low carbon 18%Cr-12%Ni-Mo stainless steels, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.
KST-317	E317-16	D317-16	D317-16	Lime titania type	Welding of AISI(SUS)317. Welding of dissimilar steels such as carbon steel to stainless steels.
KST-317L	E317L-16	D317L-16	D317L-16	Lime titania type	Welding of low carbon 18%Cr-12Ni-3%Mo which requires excellent corrosion resistance to sulfuric acid, solutions containing these salts and much hot organic acids such as formic acid.
KST-318	E318-16	D318-16	D318-16	Lime titania type	Welding of AISI 318,316,316L stainless steel.
KST-347	E347-16	D347-16	D347-16	Lime titania type	Welding of AISI(SUS)304L,321,347 stainless steel and the place where heat treatment after welding is impossible.
KST-347L	E347L-16	D347L-16	D347L-16	Lime titania type	Welding of low carbon AISI(SUS)304L,321,347 stainless steel and the place where heat treatment after welding is impossible.
KST-410	E410-16	D410-16	D410-16	Lime titania type	Welding of 13%Cr steel and surfacing of the part where require cavitation or corrosion resistance is required.
KST-430	E430-16	D430-16	D430-16	Lime titania type	Welding of 17%Cr stainless steel. Welding of AISI(SUS)403,405
KST-308Mo	E308Mo-16	D308Mo-16	D308Mo-16	Lime titania type	But and Fillet welding of ASTM CF8M stainless steel castings. Used for welding wrought materials such as Type 316L stainless when increased ferrite is desired.
KST-2209	E2209-16	-	-	Lime titania type	For welding of 22%Cr-5%Ni-3%Mo duplex stainless steels, the principal application sare chemical plant and ship building as well as nuclear plant industries.

KST-307-15

AWS E307-15
JIS D307-15
KS D307-15

FOR STAINLESS STEEL

Typical applications

Welding of dissimilar steel such as austenitic manganese steel to carbon steel forgings.
Joining work-hardenable steels, armour plate, austenitic manganese steels, and heat-resisting steels for temperatures up to 350℃ and dissimilar metals.
Hardfacing of hot working tools, stainless valve steels and carbon steel items that must possess abrasion resistance in cold working.

Coating

Low hydrogen type.

Characteristics on Usage

① It is only used in the direct current condition.
② Redry the electrode at 300℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.78	4.68	18.5	9.3	0.6

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)
650 {66}	48

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	55~80	80~120	110~150	140~180
	V&OH	45~60	70~90	90~130	–

Welding positions



Approved by

KST-309Mo-15

AWS E309Mo-15
JIS D309Mo-15
KS D309Mo-15

FOR STAINLESS STEEL

Typical applications

Build-up welding of Cr-Mo steel or carbon steel.
Welding of AISI(SUS)316 clad steel or dissimilar steels.

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
② It is only used in the direct current condition.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.35	1.84	22.2	12.4	2.4

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)	5%H_2SO_4 boiling
630 {64}	36	5.5g/m² · hr

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	30~50	60~80	80~110	100~140	140~180
	V&OH	25~45	50~60	70~90	90~130	–

Welding positions



Approved by

KST-308

AWS E308-16
JIS D308-16
KS D308-16

FOR STAINLESS STEEL

Typical applications

Welding of 18%Cr-8%Ni stainless steel
(AISI 301, 302, 304 ,308)

Coating

Lime titania type.

Characteristics on Usage

① Easy welding performance without hardening brittleness because of austenitic structure of the deposited weld metal.
② Good heat resistance and corrosion resistance.
③ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.05	0.78	1.22	19.3	9.3

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)	40%HNO3 boiling
580 {59}	44	0.09g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~80	80~110	110~150	140~180
	V&OH	35~45	40~60	70~100	90~130	–

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, KR

KST-308-15

FOR STAINLESS STEEL

AWS E308-15
JIS D308-15
KS D308-15

Typical applications

Welding of 18%Cr-8%Ni stainless steel,
(AISI 301, 302, 304 ,308)

Coating

Lime titania type.

Characteristics on Usage

① Easy welding performance without hardening brittleness because of austenitic structure of the deposited weld metal.
② Good heat resistance and corrosion resistance.
③ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.06	0.38	1.54	20.5	9.6

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)
600 {61}	38

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~80	80~110	110~150	140~180
	V&OH	35~45	40~60	70~100	90~130	–

Welding positions



Approved by

KST-308L

AWS E308L-16
JIS D308L-16
KS D308L-16

FOR STAINLESS STEEL

Typical applications

Welding of low carbon 18%Cr-8%Ni stainless steel,
(AISI (SUS) 304L)

Coating

Lime titania type.

Characteristics on Usage

① Excellent welding efficiency because of high deposition rate.
② Remove water, rust, oil and all foreign matters from the groove prior to welding.
③ Preheating is not necessary in general.
④ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.05	0.78	1.22	19.3	9.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO_3 boiling
550 {56}	44	0.06g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	55~80	90~130	110~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

ABS, BV, CWB, GL, LR, TÜV

KST-308L-15

FOR STAINLESS STEEL

AWS E308L-15
JIS D308L-15
KS D308L-15

Typical applications

Welding of low carbon 18%Cr-8%Ni stainless steel,
(AISI 301, 302, 304 ,308, (AISI(SUS)304L)

Coating

Lime titania type.

Characteristics on Usage

① Excellent welding efficiency because of high deposition rate.
② Remove water, rust, oil and all foreign matters from the groove prior to welding.
③ Preheating is not necessary in general.
④ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.03	0.41	1.67	20.6	9.5

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO_3 boiling
550 {56}	44	0.06g/m² · hr

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	55~80	90~130	110~150	140~170
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

KST-309-15

AWS E309-15
JIS D309-15
KS D309-15

FOR STAINLESS STEEL

Typical applications

Welding of 22%Cr-12%Ni stainless steel and heat-resisting castings, clad side of type 304 clad steels.
Welding of dissimilar steels such as Cr-Mo steel or carbon steel to stainless steel.

Coating

Lime titania type.

Characteristics on Usage

① As the deposited weld metal contains ferrite in austenitic structure, its crack resistance is good.
② Good heat resistance and corrosion resistance.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.05	0.36	1.83	24.5	13.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)
610 {62}	39

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~80	80~110	110~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

KST-309

AWS E309-16
JIS D309-16
KS D309-16

FOR STAINLESS STEEL

Typical applications

Welding of 22%Cr-12%Ni stainless steel and heat-resisting castings, clad side of type 304 clad steels. Welding of dissimilar steels such as Cr-Mo steel or carbon steel to stainless steel.

Coating

Lime titania type.

Characteristics on Usage

① As the deposited weld metal contains ferrite in austenitic structure, its crack resistance is good.
② Good heat resistance and corrosion resistance.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.06	0.72	1.36	23.6	12.6

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO3 boiling
550 {56}	44	0.08g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~80	80~110	110~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, KR, LR

www.PetroJoosh.com

KST-309MoL

AWS E309MoL-16
JIS D309MoL-16
KS D309MoL-16

FOR STAINLESS STEEL

Typical applications
Build-up welding of AISI(SUS)316 clad steel or dissimilar steels.

Coating
Lime titania type.

Characteristics on Usage
① Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.03	0.76	1.78	23.2	13.1	2.4

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)
590 {60}	41

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	30~55	55~80	90~120	100~140	140~180
	V&OH	25~45	45~60	70~90	90~130	–

Welding positions


Approved by
KR

KST-309Mo

FOR STAINLESS STEEL

AWS E309Mo -16
JIS D309Mo -16
KS D309Mo -16

Typical applications
Build-up welding of Cr-Mo steel or carbon steel.
Welding of AISI(SUS)316 clad steel or dissimilar steels.

Coating
Lime titania type.

Characteristics on Usage
① Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.78	1.47	23.2	12.4	2.3

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)	5%H_2SO_4
630 {64}	34	5.5g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	50~70	80~100	110~140	140~170
	V&OH	40~60	70~90	90~130	–

Welding positions


Approved by
DNV

KST-312

AWS E312-16
JIS D312-16
KS D312-16

FOR STAINLESS STEEL

Typical applications
Welding of 29%Cr-9%Ni type cast steels and difficult-to-weld steels.
Joint welding and hardfacing of stainless steel and heat-resisting steels.

Coating
Lime titania type.

Characteristics on Usage
① Good crack resistance because of extremely much quantity of ferrite of the deposited weld metal.
② Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.08	0.45	1.30	29.1	8.5

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)
770 {79}	24

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	40~80	70~110	110~140	140~180
	V&OH	35~75	70~90	80~120	–

Welding positions


Approved by

KST-310

FOR STAINLESS STEEL

AWS E310-16
JIS D310-16
KS D310-16

Typical applications
Welding of AISI(SUS) 310S, SCS 18 and clad side of 18%Cr-8%Ni stainless clad steels.

Coating
Lime titania type.

Characteristics on Usage
① The deposited weld metal has perfect austenitic structure.
② Good mechanical property and heat resistance of the deposited weld metal.
③ Redry the electrode at 150~200℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.11	0.40	1.86	25.6	20.8

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO_3
590 {60}	40	0.08g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	30~50	50~80	80~110	110~140	140~180
	V&OH	25~45	40~60	70~90	90~130	–

Welding positions


Approved by
CWB

KST-316

AWS E316-16
JIS D316-16
KS D316-16

FOR STAINLESS STEEL

Typical applications

Welding of18%Cr-12%Ni-Mo stainless steels (AISI316).
Welding of dissimilar steels.

Coating

Lime titania type.

Characteristics on Usage

① Especially suitable for flat and horizontal fillet welding.
② Excellent corrosion resistance against sulphurous acid, phosphoric acid and acetic acid.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.73	1.18	18.3	12.5	2.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
570 {58}	41	4.6g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~80	80~120	110~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

ABS, BV, CWB, GL

FOR STAINLESS STEEL

TENSILE WELD

Typical applications

Welding of 29%Cr-9%Ni type cast steels and difficult-to-weld steels.
Joint welding and hardfacing of stainless steel and heat-resisting steels.

Coating

Lime titania type

Characteristics on Usage

① Good usability and weldability
② Good crack resistance because of extremely much quantity of ferrite of the deposited weld metal.
③ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.08	0.95	1.48	28.9	8.6

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)
770 {79}	24

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	40~80	70~110	110~140	140~180
	V&OH	35~70	70~100	90~130	–

Welding positions



Approved by

KST-316L

AWS E316L-16
JIS D316L-16
KS D316L-16

FOR STAINLESS STEEL

Typical applications

Welding of low carbon 18%Cr-12%Ni-Mo stainless steels, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.

Coating

Lime titania type.

Characteristics on Usage

① Good crack resistance and usability because of austenitic structure with suitable ferrite of the deposited weld metal.
② As low carbon welded metal can be obtained, intergranular corrosion resistance is superior to that of E316 type.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.03	0.72	1.08	18.4	12.5	2.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
540 {55}	43	5.0g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	55~70	80~110	120~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, KR, LR, TÜV

KST-316-15

FOR STAINLESS STEEL

AWS E316-15
JIS D316-15
KS D316-15

Typical applications

Welding of 18%Cr-12%Ni-Mo stainless steel (AISI(SUS) 316)
Welding of dissimilar steels.

Coating

Lime titania type.

Characteristics on Usage

① Especially suitable for flat and horizontal fillet welding.
② Excellent corrosion resistance against sulphurous acid, phosphoric acid and acetic acid .
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.39	1.18	18.9	11.5	2.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
580 {59}	41	5.0g/m² · hr

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	50~70	80~120	110~140	140~170
	V&OH	35~45	40~60	70~90	90~130	–

Welding positions



Approved by

KST-317

AWS E317-16
JIS D317-16
KS D317-16

FOR STAINLESS STEEL

Typical applications

Welding of AISI(SUS)317.
Welding of dissimilar steels such as carbon steel to stainless steels.

Coating

Lime titania type.

Characteristics on Usage

① Good weldability and performance.
② Reduce the susceptibility of pitting.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.74	1.20	18.5	12.3	3.2

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
580 {59}	42	4.6g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~60	55~90	80~110	110~150	140~180
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

KST-316L-15

AWS E316L-15
JIS D316L-15
KS D316L-15

FOR STAINLESS STEEL

Typical applications

Welding of low carbon 18%Cr-12%Ni-Mo stainless steels, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.

Coating

Lime titania type.

Characteristics on Usage

① Good crack resistance and usability.
② As low carbon welded metal can be obtained, intergranular corrosion resistance is superior to that of E316 type.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.03	0.40	1.21	19.2	11.4	2.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
590 {60}	39	5.0g/m² · hr

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~50	55~70	80~100	110~150	140~170
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

KST-318

AWS E318-16
JIS D318-16
KS D318-16

FOR STAINLESS STEEL

Typical applications
Welding of AISI 318, 316, 316L stainless steel

Coating
Lime titania type.

Characteristics on Usage
① The deposited weld metal is highly resistant to pitting and general type of corrosion.
② Insensitive to intergranular corrosion because of Cb.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo	Cb
0.05	0.76	1.32	18.5	11.9	2.3	0.7

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO_3
630 {64}	38	0.08g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~60	50~80	80~110	120~150	140~180
	V&OH	35~45	45~60	60~90	90~130	–

Welding positions


Approved by

KST-317L

AWS E317L-16
JIS D317L-16
KS D317L-16

FOR STAINLESS STEEL

Typical applications
Welding of low carbon 18%Cr-12%Ni-3%Mo which requires excellent corrosion resistance to sulfuric acid, solutions containing these salts and much hot organic acids such as formic acid.

Coating
Lime titania type.

Characteristics on Usage
① Good weldability and performance.
② Reduce the susceptibility of pitting.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.03	0.75	1.24	18.6	12.4	3.3

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5%H_2SO_4
560 {57}	44	4.0g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~60	55~80	80~110	110~150	140~180
	V&OH	35~45	40~60	70~90	90~130	–

Welding positions


Approved by

KST-347L

AWS E347L-16
JIS D347L-16
KS D347L-16

FOR STAINLESS STEEL

Typical applications
Welding of low carbon AISI(SUS)304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.

Coating
Lime titania type.

Characteristics on Usage
① Excellent intergranular corrosion resistance.
② Redry the electrode at 150~200℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cb
0.03	0.46	1.68	19.4	9.8	0.7

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO3
610 {62}	36	0.08g /m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~60	55~80	80~110	110~140	140~170
	V&OH	35~45	45~60	70~90	90~130	–

Welding positions



Approved by

KST-347

AWS E347-16
JIS D347-16
KS D347-16

FOR STAINLESS STEEL

Typical applications
Welding of AISI(SUS)304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.

Coating
Lime titania type.

Characteristics on Usage
① Excellent intergranular corrosion resistance.
② Redry the electrode at 150~200℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Cb
0.06	0.42	1.98	19.9	9.5	0.6

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO3
630 {64}	36	0.08g /m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	40~60	50~70	70~110	100~150	140~180
	V&OH	35~45	45~60	65~90	90~130	–

Welding positions



Approved by

KST-430

AWS E430-16
JIS D430-16
KS D430-16

FOR STAINLESS STEEL

Typical applications

Welding of 17%Cr stainless steel.
Welding of AISI (SUS)403, 405

Coating

Lime titania type.

Characteristics on Usage

① Preheat at 200~300℃ and postheat treat at 700~800℃.
② Redry the electrodes at 200~250℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.07	0.42	0.40	17.4

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)	PWHT
530 {54}	31	760℃ × 2hr. S · R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	55~70	80~100	110~140	140~170
	V&OH	45~60	70~90	90~130	–

Welding positions



Approved by

KST-410

AWS E410-16
JIS D410-16
KS D410-16

FOR STAINLESS STEEL

Typical applications

Welding of 13%Cr steel and surfacing of the part where require cavitation or corrosion resistance is required.

Coating

Lime titania type.

Characteristics on Usage

① Excellent oxidation corrosion and abrasion resistance of the deposited weld metal.
② Preheat at 100~200℃ and postheat treat at 700~800℃ because of self-hardening property of the deposited weld metal.
③ Redry the electrode at 200~250℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.08	0.70	0.76	12.1

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)	PWHT
560 {57}	24	730℃ × 1hr. S · R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~90	80~110	110~150	150~180
	V&OH	45~60	70~90	90~130	–

Welding positions



Approved by

KST-308Mo

AWS E308Mo-16
JIS D308Mo-16
KS D308Mo-16

FOR STAINLESS STEEL

Typical applications

But and Fillet welding of ASTM CF8M stainless steel castings.
Used for welding wrought materials such as Type 316L stinless when increased ferrite is desired.

Coating

Lime titania type.

Characteristics on Usage

① Easy welding performance without hardening brittleness because of austenitic structure of the deposited weld metal.
② Good heat resistance and corrosion resistance.
③ Welds are carefully cleaned using a stainless steel wire brush.
④ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo
0.05	0.36	1.42	19.8	9.4	2.1

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	5% H_2SO_4 boiling
610 {62}	38	5.0g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia. (mm)		2.6	3.2	4.0	5.0
Length (mm)		350	350	350	350
Amp.	F	50~80	70~110	110~150	140~180
	V&OH	40~70	60~90	90~130	–

Welding positions



Approved by

KST-2209

AWS A5.4 E2209-16

For Duplex stainless steel (22%Cr-9%Ni-Mo)

Typical applications

For welding of 22%Cr-5%Ni-3%Mo duplex stainless steels, the principal applicationsare chemical plant and shipbuilding as well as nuclear plant industries. (UNS S31803)

Coating

Lime titania type

Characteristics on Usage

① Excellent pitting corrosion resistance and stress corrosion cracking resistance.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.
③ Please perform welding with selecting proper heat input according to the required mechanical properties.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo	N
0.02	0.62	0.80	21.90	9.3	3.2	0.18

Typical mechanical properties of all-weld-metal

T · S N/mm²{kgf/mm²}	El (%)
860 {88}	31

Sizes available and recommended currents (AC or DC ⊕)

Dia. (mm)		2.6	3.2	4.0	5.0
Length (mm)		300	350	350	350
Amp.	Flat	50~80	80~110	110~150	140~180
	V-Up	40~60	70~100	70~100	–

Welding positions



Approved by

KST-309L-15

AWS E309L-15
JIS D309L-15
KS D309L-15

FOR STAINLESS STEEL

Typical applications

Welding of 22%Cr-12%Ni steel and heat-resisting castings, clad stainless steel. Welding of dissimilar metal such as carbon steel to stainless steel.

Coating

Lime titania type.

Characteristics on Usage

① As its deposited weld metal has austenitic structure, with suitable ferrite, crack resistance is good and intergranular corrosion resistance is superior to that of E309 type.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.03	0.40	1.92	24.3	13.2

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)
590 {60}	38

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	30~50	50~80	80~110	100~150	140~180
	V&OH	25~45	40~60	70~90	80~130	–

Welding positions



Approved by

KST-309L

FOR STAINLESS STEEL

AWS E309L-16
JIS D309L-16
KS D309L-16

Typical applications

Welding of 22%Cr-12%Ni steel and heat-resisting castings, clad stainless steel. Welding of dissimilar metal such as carbon steel to stainless steel.

Coating

Lime titania type.

Characteristics on Usage

① As its deposited weld metal has austenitic structure, with suitable ferrite, crack resistance is good and intergranular corrosion resistance is superior to that of E309 type.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0.03	0.71	1.34	23.7	12.6

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	40%HNO_3
550 {56}	44	0.06g/m² · hr

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.0	2.6	3.2	4.0	5.0
Length	(mm)	250	300	350	350	350
Amp.	F	30~50	50~80	80~110	110~150	140~180
	V&OH	25~45	40~60	70~90	90~130	–

Welding positions



Approved by

ABS, CWB

جدول خلاصه محصولات برای Cast Iron

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KL-100	-	DFCCI	DFCCI	Graphite type	For repairing of all kinds of cast iron product cavity filling.
KCF-50	(ESt)	(DFCFe)	(DFCFe)	Graphite type	For repairing of various kinds of cast iron products.
KFN-50	ENiFe-CI	DFCNiFe	DFCNiFe	Graphite type	Joining of spheroidal graphite cast iron. Repairing of cast iron products such as cylinder covers, motor beds, casings and gears.
KSN-100	ENi-CI	DFCNi	DFCNi	Graphite type	Repairing and joining of various kinds of cast iron products such as cylinder covers, motor beds, casings and gears. Repairing of mechanize cast iron, alloy cast iron and malleable cast iron.

KCF-50

AWS (ESt)
JIS (DFCFe)
KS (DFCFe)

FOR CAST IRON

Typical applications
For repairing of various kinds of cast iron products.

Coating
Graphite type.

Characteristics on Usage
① Stable arc, easy slag removal and beautiful bead appearance.
② Preheat at 200~350℃. The temperature to be applied varies in accordance with kind, shape and size of base metal.
③ Gradual cooling is recommended after welding.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
1.68	0.50	0.35	0.016	0.010

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)	Hardness (HV)
490 {50}	33	200

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	F	60~90	90~130	130~180	150~200

Welding positions



Approved by

FOR CAST IRON

AWS ENiFe-CI
JIS DFCNiFe
KS DFCNiFe

KFN-50

Typical applications
Joining of spheroidal graphite cast iron. Repairing of cast iron products such as cylinder covers, motor beds, casings and gears.

Coating
Graphite type.

Characteristics on Usage
① Good crack resistance and mechanical properties.
② Preheat at 150~300℃. The temperature to be applied varies in accordance with kind, shape and size of base metal.
③ Redry the electrode at 100~130℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Fe	Ni
0.80	0.36	1.45	Rem.	55.5

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	Hardness		
	HV	HB	HS
550 {56}	180~210	171~200	26~30

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~90	80~120	120~150	140~190

Welding positions



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KSN-100

AWS ENi-CI
JIS DFCNi
KS DFCNi

FOR CAST IRON

Typical applications

Repairing and joining of various kinds of cast iron products such as cylinder covers, motor beds, casings and gears.
Repairing of cast iron, alloy cast iron and malleable cast iron.

Coating

Graphite type.

Characteristics on Usage

① Easily machinable deposited weld metal.
② Chip off base metal completely at the repairing part.
③ Preheat at 150~200℃. The temperature to be applied varies in accordance with kind, size and shape of base metal.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Fe	Ni
0.55	0.40	0.35	0.85	Rem.

Typical mechanical properties of all-weld-metal

T · S	Hardness		
N/mm² {kgf/mm²}	HV	HB	HS
420 {43}	160~190	152~181	24~28

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~90	70~110	110~130	130~150

Welding positions




Approved by

FOR CAST IRON

JIS DFCCI
KS DFCCI

KL-100

Typical applications

For repairing of all kinds of cast iron product cavity filling.

Coating

Graphite type.

Characteristics on Usage

① Preheat at minimum 200℃. The temperature to be applied varies in accordance with kind, shape and size of base metal.
② Gradual cooling is recommended after welding.
③ Redry the electrode at 100~150℃ for 60 minutes prior to use

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
3.16	6.27	0.42	0.016	0.011

Typical hardness of all-weld-metal

HV	HRC
280	27.1

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	F	110~140	150~190	190~220

Welding positions




Approved by

جدول خلاصه محصولات برای Hardfacing

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KM-100	-	DF2A-250-R	DF2A-250-R	High titania type	Hardfacing of shafts, tires, gears, crane wheels, etc.
KM-100C	-	DF2A-350-R	DF2A-350-R	High titania type	Hardfacing of shafts and clutch lugs.
KM-300R	-	DF2A-300-R	DF2A-300-R	High titania type	Hardfacing of shafts, roller, spindle, crane wheel, etc.
KM-250	-	DF2A-250-B	DF2A-250-B	Low hydrogen type	Hardfacing and repairing of worn parts such as shafts, gears, wheels, etc.
KM-300	-	DF2A-300-B	DF2A-300-B	Low hydrogen type	Hardfacing of shafts, roller, spindle, crane wheel, etc.
KM-350	-	DF2B-350-B	DF2B-350-B	Low hydrogen type	Hardfacing of fans, upper rollers, shafts and sprockets.
KM-500	-	DF2B-450-B	DF2B-450-B	Low hydrogen type	Hardfacing of idlers, rollers, bulldozer blades, sprockets, caterpillar links, crushers, dipper teeth and conveyors, etc.
KM-700	-	DF2B-700-B	DF2B-700-B	Low hydrogen type	Hardfacing of cutter knives, dredger and mixer.
KM-800	-	DF3C-700-B	DF3C-700-B	Low hydrogen type	Hardfacing of impellers, pump casings.
KM-900	-	DFMA-250-B	DFMA-250-B	Low hydrogen type	-
KM-11Cr	-	DF4B-500-B	DF4B-500-B	Low hydrogen type	Hardfacing of cold or hot shearer blade, liner pump casing generator-water turbine, liner dredger.
KBH-2	-	-	-	Low hydrogen type	Hardfacing of roller and shear used at elevated temperature, ingot tongs and forged metal mould.
KOSPEL-600H	-	-	-	Low hydrogen type	Hardfacing of metal mould, thermal cutting off machine, forging mould, dotting punch, compression tap, impact tap and axis of rotation.
KM-13CrM	-	-	-	Lime titania type	Hardfacing of hot roller dies, tong punch and hot cutting knife, etc.
KSB-2	-	DF3B-600-BR	DF3B-600-BR	Lime titania type	Hardfacing of dies, clutch cams and metal mould.
KOSPEL-800R	-	-	-	Lime titania type	Hardfacing of conveyors screw, catepillar, crusher and dredger teeth.
KM-1000	-	DFWA-700-S	DFWA-700-S	Special Type	Hardfacing of cutter knives, shovel teeth, cutters for coal, concrete cutters and earth drills
KQD-600	-	-	-	Lime titania type	Hardfacing of press mould, forged metal mould, tool steel and hardened part by quenching

KM-100

JIS DF2A-250-R
KS DF2A-250-R

FOR HARDFACING

Typical applications
Hardfacing of shafts, tires, gears, crane wheels, etc.

Coating
High titania type.

Characteristics on Usage
① Easy slag removal.
② Beautiful, smooth bead appearance.
③ Preheat at 150~200℃ only for low alloy steel and high carbon steel.
④ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.
⑤ Extremely machinable the deposited weld metal.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.11	0.42	0.98	0.016	0.013

Typical hardness of all-weld-metal

Conditions	As welded	
	Continuous surfacing	Interpass temperature max.100℃
HV	225~240	245~265
HRC	16~20	21~25
HS	33~34	35~38

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	80~120	140~170	170~210	200~250

Welding positions


Approved by

KM-100C

FOR HARDFACING

JIS DF2A-350-R
KS DF2A-350-R

Typical applications
Hardfacing of shafts and clutch lugs.

Coating
High titania type.

Characteristics on Usage
① Easy slag removal and smooth bead appearance.
② Preheat at 150℃ and over only for cast steel, low alloy steel and high carbon steel.
③ Extremely machinable the deposited weld metal.
④ Redry the electrode at 70~120℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.19	0.44	0.74	2.6

Typical hardness of all-weld-metal

Conditions	As welded	Heat treated	
	Interpass temperature 150℃	900℃ oil quenching	650℃ stress relief
HV	350	435	300
HRC	35.5	44.1	29.8
HS	48	59	42

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~120	140~170	190~230	220~280

Welding positions


Approved by

KM-300R

JIS DF2A-300-R
KS DF2A-300-R

FOR HARDFACING

Typical applications
Hardfacing of shafts, roller, spindle, crane wheel, etc.

Coating
High titania type.

Characteristics on Usage
① Excellent slag removal and smooth bead appearance.
② Preheat at about 150℃ only for multilayer welding of low alloy steels and high carbon steel.
③ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.20	0.28	0.30	2.4

Typical mechanical properties of all-weld-metal

Conditions	As welded	Heat treated	
	Interpass temperature 150℃	900℃ oil quenching	650℃ stress relief
HV	308	420	285
HRC	30.8	42.7	27.8
HS	43	57	41

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	80~130	140~180	170~240	240~300

Welding positions



Approved by

KM-250

FOR HARDFACING

JIS DF2A-250-B
KS DF2A-250-B

Typical applications
Hardfacing and repairing of worn parts such as shafts, gears, wheels, etc.

Coating
Low hydrogen type.

Characteristics on Usage
① Stable arc, smooth bead appearance and easy slag removal.
② High abrasion resistance and impact resistance.
③ Preheat at about 150℃ only for multilayer welding of low alloy steel and high carbon steel.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.18	0.69	2.28	0.013	0.009

Typical mechanical properties of all-weld-metal

Conditions	As welded	Heat treated	
	Interpass temperature 150℃	900℃ oil quenching	650℃ stress relief
HV	278	395	250
HRC	26.8	40.3	22.2
HS	39	54	36

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	140~180	180~240	220~300

Welding positions



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KM-300

JIS DF2A-300-B
KS DF2A-300-B

FOR HARDFACING

Typical applications
Hardfacing of shafts, roller, spindle, crane wheel, etc.

Coating
Low hydrogen type.

Characteristics on Usage
① Good usability.
② Good machinable deposited weld metal.
③ Preheat at about 150℃ only for multilayer welding of low alloy steels and high carbon steels.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.20	0.60	1.48	0.7

Typical mechanical properties of all-weld-metal

Conditions	As welded	Heat treated	
	Interpass temperature 150℃	900℃ oil quenching	650℃ stress relief
HV	308	408	280
HRC	30.8	41.6	27.1
HS	43	56	40

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	80~130	140~180	170~240	240~300

Welding positions



Approved by

KM-350

JIS DF2B-350-B
KS DF2B-350-B

FOR HARDFACING

Typical applications
Hardfacing of fans, upper rollers, shafts and sprockets.

Coating
Low hydrogen type.

Characteristics on Usage
① Machining is possible in general.
② Hardness increases by quenching after machining.
③ Suitable for intermetallic abrasion and moderate impact abrasion.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.36	0.65	0.74	2.0

Typical mechanical properties of all-weld-metal

Conditions	As welded	Heat treated	
	Interpass temperature 150℃	900℃ oil quenching	650℃ stress relief
HV	356	440	300
HRC	36.1	44.5	29.8
HS	49	59	42

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	140~180	190~240	220~300

Welding positions



Approved by

KM-500

JIS DF2B-450-B
KS DF2B-450-B

FOR HARDFACING

Typical applications

Hardfacing of idlers, rollers, bulldozer blades, sprockets, caterpillar links, crushers, dipper teeth and conveyors, etc.

Coating

Low hydrogen type.

Characteristics on Usage

① The deposited weld metal has typical martensite structure and high grade of hardness and ductility as welded.
② Machining is impossible as welded.
③ Preheat at about 150℃ and over in general.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.38	0.84	1.56	2.5

Typical mechanical properties of all-weld-metal

Conditions	As welded		Heat treated (furnace cooling)	
	Interpass temperature 150℃	Interpass temperature 200℃	550℃×6hr.	625℃×6hr.
HV	452	408	443	348
HRC	45.5	41.6	44.8	35.8
HS	60	56	59	48

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	80~120	130~170	170~220	220~280

Welding positions



Approved by

KM-700

JIS DF2B-700-B
KS DF2B-700-B

FOR HARDFACING

Typical applications

Hardfacing of cutter knives, dredger and mixer.

Coating

Low hydrogen type.

Characteristics on Usage

① The deposited weld metal has martensite structure.
② In the case of multilayer build-up welding base plates of hardening properties, under-laying with low hydrogen type carbon steel electrode.
③ Preheat at 150℃ and postheat at 600℃

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.48	1.42	1.36	3.9

Typical mechanical properties of all-weld-metal

Conditions	As welded		Heat treated
	Interpass temperature 200℃	300℃ oil quenching	600℃ stress relief
HV	688	690	585
HRC	59.6	59.7	54.4
HS	81	81	73

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	140~170	190~240	220~300

Welding positions



Approved by

KM-800

JIS DF3C-700-B
KS DF3C-700-B

FOR HARDFACING

Typical applications
Hardfacing of impellers, pump casings.

Coating
Low hydrogen type.

Characteristics on Usage
① The deposited weld metal has an extremely hard martensite structure.
② Machining is impossible as welded.
③ Preheat at 200℃ and over.
④ Postheat treat at about 600℃ immediately after welding.
⑤ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr
0.47	1.45	1.51	4.1

Typical mechanical properties of all-weld-metal

Conditions	As welded		Heat treated
	Interpass temperature 150℃	300℃ oil quenching	600℃ stress relief
HV	723	810	535
HRC	61.1	64.4	51.4
HS	83	89	69

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	140~170	190~240	220~300

Welding positions



Approved by

KM-900

FOR HARDFACING

JIS DFMA-250-B
KS DFMA-250-B

Typical applications
Hardfacing of crushers, high manganese rails, buckets, bulldozer parts and build-up of parts subject to serene impact and abrasion.

Coating
Low hydrogen type.

Characteristics on Usage
① The deposited weld metal has austenite structure.
② Extremely ductile deposited weld metal.
③ When the base metal of 13% Mn steel is hardened, cut off the hardened zone before welding.
④ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S
0.52	0.30	12.1	0.018	0.012

Typical mechanical properties of all-weld-metal

Conditions	As welded	Work hardenability
	Interpass temperature 150℃	
HV	225	510
HRC	16.9	49.8
HS	33	66.5

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0	6.0
Length	(mm)	350	400	400	450
Amp.	F	90~130	140~180	190~240	220~300

Welding positions



Approved by

KM-11Cr

JIS DF4B-500-B
KS DF4B-500-B

FOR HARDFACING

Typical applications

Hardfacing of cold or hot shearer blade, liner pump casing generator-water turbine, liner dredger.

Coating

Low hydrogen type.

Characteristics on Usage

① The deposited weld metal has the microstructure of martensite.
② Abrasion resisting properties is good at elevated temperature, so it is used for repairing of hot tool.
③ Preheating is not necessary in general, but preheat at 150℃ and over only for high carbon steels and low alloy steels.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0.40	1.28	0.46	11.2	1.4

Typical mechanical properties of all-weld-metal

Conditions	As welded
	Interpass, temperature 150℃
HV	540
HRC	51.7
HS	69

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	F	90~110	110~150	150~200

Welding positions



Approved by

FOR HARDFACING

KBH-2

Typical applications

Hardfacing of roller and shear used at elevated temperature, ingot tongs and forged metal mould.

Coating

Low hydrogen type.

Characteristics on Usage

① The deposited weld metal has the microstructure of carbide precipitation in the austenite matrix.
② Preheat at about 150℃ and maintain the interpass temperature above 150℃ for multilayer welding of low alloy steels and high carbon steels.
③ Redry the electrode at 300~350℃ for 30~60 minutes

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni	Mo	W
0.29	0.15	1.25	16.4	8.2	4.5	5.4

Typical mechanical properties of all-weld-metal

Conditions	As welded	
	Continuous surfacing	Interpass temperature max. 150℃
HV	250	320
HRC	22.2	32.2
HS	36	45

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	350	350
Amp.	F	100~120	120~150	150~180

Welding positions



Approved by

KOSPEL-600H

FOR HARDFACING

Typical applications
Hardfacing of metal mould, thermal cutting off machine, forging mould, dotting punch, compression tap, impact tap and axis of rotation.

Coating
Low hydrogen type.

Characteristics on Usage
① The microstructure of deposited weld metal has martensite.
② Preheat at 200~300℃ and postheat treat at 500~600℃, if possible.
③ Keep up interpass temperature same as preheating temperature, if possible.
④ Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	W	V
0.25	0.59	0.95	2.5	4.2	1.0

Typical mechanical properties of all-weld-metal

Conditions	As welded		Heat treated (Air cooling)			
	Continuous surfacing	Preheat and interpass temperature 150℃	350℃ ×2hr	550℃ ×2hr	650℃ ×2hr	780℃ ×2hr
HV	520~570	560~600	570~620	640~690	530~580	280~320
HRC	51~54	53~55	54~56	57~60	51~54	27~32
HS	67~71	71~74	71~75	77~81	67~72	40~45

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	F	90~130	100~150	120~170	150~200

Welding positions


Approved by

KM-13CrM

FOR HARDFACING

Typical applications
Hardfacing of hot roller dies, tong punch and hot cutting knife, etc.

Coating
Lime titania type.

Characteristics on Usage
① The deposited weld metal has the microstructure of a fine carbide precipitation in austenite matrix.
② The high temperature hardness over 600℃ is high, so it has excellent abrasion-resistance.
③ Machining is possible in general.
④ Good bead appearance and restriking properties, preheating is not necessary in general, but preheat at 150℃ and over only for high carbon steels and low alloy steels.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	W	Mo
0.30	0.48	12.4	11.8	1.8	1.5

Typical mechanical properties of all-weld-metal

Conditions	As welded
HV	310
HRC	31
HS	43

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	4.0	5.0
Length	(mm)	400	400
Amp.	F	140~180	180~230

Welding positions


Approved by

KQD-600

FOR HARDFACING

Typical applications
Hardfacing of press mould, forged metal mould, tool steel and hardened part by quenching.

Coating
Lime titania type.

Characteristics on Usage
① The microstructure of deposited weld metal has martensite.
② Excellent impact-resisting and wear-resisting properties at high temperature as well as room temperature.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	W
0.30	0.36	0.28	9.4	1.3	12.1

Typical mechanical properties of all-weld-metal

Conditions	As welded	
	Continuous surfacing	Interpass temperature max.100℃
HV	580 620	590 610
HRC	54~56	55~56
HS	72~75	73~75

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0
Length	(mm)	350	350	350
Amp.	F	70~90	100~120	130~170

Welding positions



Approved by

FOR HARDFACING

JIS DF3B-600-BR
KS DF3B-600-BR

KSB-2

Typical applications
Hardfacing of dies, clutch cams and metal mould.

Coating
Lime titania type.

Characteristics on Usage
① Excellent working efficiency.
② Excellent slag removal and restriking properties.
③ Excellent heat-resisting, crack-resisting, wear-resisting and impact- resisting properties.
④ In the case of multilayer build-up welding base plates of hardening properties, underlaying with low hydrogen type carbon steel electrodes.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	V
0.50	0.09	0.52	6.1	1.8	0.4

Typical mechanical properties of all-weld-metal

Conditions	As welded		
	Continuous surfacing	Interpass temperature max.100℃	Preheating 200℃, Continuous surfacing
HV	570	650	580
HRC	53.6	57.8	54.1
HS	71	78	72

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	F	80~100	120~150	160~200

Welding positions



Approved by

KOSPEL-800R

FOR HARDFACING

Typical applications
Hardfacing of conveyor screw, caterpillar, crusher and dredger teeth.

Coating
Lime titania type.

Characteristics on Usage
① Excellent friction and impact abrasion resisting properties.
② Preheat at 200℃ and postheat treat at 500~600℃.
③ Redry the electrode at 150~200℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	V
0.38	0.42	0.32	5.5	2.5	0.8

Typical mechanical properties of all-weld-metal

Conditions	As welded	
	Continuous surfacing	Preheat and interpass temperature 300℃
HV	760 - 820	700 - 750
HRC	63~65	60~62
HS	86~90	81~85

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	400	400
Amp.	F	80~140	90~160	120~180	140~200

Welding positions




Approved by

FOR HARDFACING

JIS DFWA-700-S
KS DFWA-700-S

KM-1000

Typical applications
Hardfacing of cutter knives, shovel teeth, cutters for coal, concrete cutters and earth drills.

Coating
Special type.

Characteristics on Usage
① The deposited weld metal is harder than other kinds of deposited weld metal.
② Extremely excellent heavy soil abrasion resistance.
③ The deposited weld metal has tungsten carbide alloy.
④ Machining is impossible.
⑤ Preheat at 300℃ and over.
⑥ Postheat treat at about 600℃ immediately after welding.
⑦ Redry the electrode at 70~100℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	W
2.98	0.60	1.88	48.0

Typical mechanical properties of all-weld-metal

Conditions	As welded
	Preheat and interpass temperature 350℃
HV	820
HRC	64.7
HS	90

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp.	F	90~130	120~180	170~230

Welding positions




Approved by

جدول خلاصه محصولات برای Low Temperture Service Steel

Product	Standard			Covered Arc Welding Electrodes	Application
	AWS	JIS	KS		
KK-50N	E7016-G	DL5016-4A0	DL5016-4A0	Low hydrogen type	Welding of aluminium-killed steel to be used for LPG tankers, LPG storage tanks, machineries and structures.
KK-50NN	E7016-G	DL5016-6A1	DL5016-6A1	Low hydrogen type	Welding of aluminium-killed steel to be used for LPG tankers and LPG storage tank, etc.
K-8016C1	E8016-C1	DL5016-6P2	DL5016-6P2	Low hydrogen type	Welding of 3.5%Ni steels and aluminium-killed steels used at low temperature, LPG tanks, LNG tanks, etc.
K-8016C2	E8016-C2	DL5016-6P3	DL5016-6P3	Low hydrogen type	Welding of 3.5%Ni steels and aluminium-killed steels used at low temperature, LPG tanks, LNG tanks, etc.
K-7018N	E7018-1	-	-	Low hydrogen, iron powder type	Welding of nuclear reactor vessels, pressure vessels, LPG tankers, LNG storage tanks and similar installations at low temperature.
K-8018C1	E8018-C1	-	-	Low hydrogen, iron powder type	Welding of 2.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanker, LNG tanker, etc.
K-8018C2	E8018-C2	-	-	Low hydrogen, iron powder type	Welding of 3.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanker where high impact properties are necessary at -73mm2.
K-8018C3	E8018-C3	-	-	Low hydrogen, iron powder type	Welding of 1%Ni and high tensile strength steel for military and commercial applications where good impact property and minimum 590N/mm2 tensile strength is needed.

KK-50N

AWS E7016-G
JIS DL5016-4A0
KS DL5016-4A0

FOR LOW TEMPE-RATURE SERVICE STEEL

Typical applications

Welding of aluminium-killed steel to be used for LPG tankers, LPG storage tanks, machineries and structures.

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent notch toughness of deposited weld metal at low temperature.
② Redry the electrode at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.08	0.42	1.35	0.47

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-45℃)
490 {50}	570 {58}	30	130 {13}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~100	70~130	150~190	220~250	250~310
	V&OH	30~80	70~100	120~160	150~200	–

Welding positions



Approved by

DNV, LR

KK-50NN

FOR LOW TEMPE-RATURE SERVICE STEEL

AWS E7016-G
JIS DL5016-6A1
KS DL5016-6A1

Typical applications

Welding of aluminium-killed steel to be used for LPG tankers and LPG storage tanks, etc.

Coating

Low hydrogen type.

Characteristics on Usage

① Excellent notch toughness of deposited weld metal at low temperature.
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.37	1.45	1.37

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-60℃)	(-50℃)
520 {53}	590 {60}	30	130 {13}	160 {16}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~100	70~130	150~190	220~250	250~300
	V&OH	30~80	70~100	120~160	130~200	–

Welding positions



Approved by

K-8016C1

AWS E8016-C1
JIS DL5016-6P2
KS DL5016-6P2

FOR LOWTEMPERATURE SERVICE STEEL

Typical applications
Welding of 2.5%Ni steels and aluminium-killed steels used at low temperature, LPG tanks, etc.

Coating
Low hydrogen type.

Characteristics on Usage
① Excellent impact value at -60℃
② Redry the electrode at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.45	0.98	2.25

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m}(-60℃)	PWHT
520 {53}	600 {61}	30	130 {13}	620℃×1hr. S-R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	110~150	150~190	200~240	250~310
	V&OH	50~80	100~140	120~170	150~200	–

Welding positions



Approved by

K-8016C2

FOR LOWTEMPERATURE SERVICE STEEL

AWS E8016-C2
JIS DL5016-6P3
KS DL5016-6P3

Typical applications
Welding of 3.5%Ni steels and aluminium-killed steels used at low temperature , LPG tanks, LNG tanks, etc.

Coating
Low hydrogen type.

Characteristics on Usage
① Excellent impact value at -73℃
② Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.45	1.10	3.46

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m}(-73℃)	PWHT
500 {51}	610 {62}	30	70 {7}	620℃×1hr. S-R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	50~90	90~130	130~180	180~240	220~260
	V&OH	50~80	80~120	110~160	150~200	–

Welding positions



Approved by

K-7018N

AWS E7018-1

FOR LOW TEMPE-RATURE SERVICE STEEL

Typical applications

Welding of nuclear reactor vessels, pressure vessels, LPG tankers, LPG storage tanks and similar installations at low temperature.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Excellent impact value at -46℃
② Excellent mechanical properties.
③ Redry the electrodes at 300~350℃ for 30~60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.58	1.38	0.15

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-46℃)
510 {52}	590 {60}	32	130 {13}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	70~100	90~130	150~190	160~220	180~230
	V&OH	60~90	85~120	110~160	130~180	–

Welding positions



Approved by

CWB, DNV, LR

FOR LOW TEMPE-RATURE SERVICE STEEL

AWS E8018-C1

K-8018C1

Typical applications

Welding of 2.5%Ni steel and aluminium-killed steel used at low temperature , LPG tanker, LNG tanker, etc.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Excellent notch toughness of the deposited weld metal at low temperature.
② Stable arc in flat and horizontal fillet welding.
③ Weld metal of fine ripple mark without undercut can be obtained.
④ Redry the electrodes at 350~400℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.06	0.60	0.98	2.41

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-50℃)	Charpy V-notch J {kgf · m} (-60℃)	PWHT
530 {54}	640 {65}	29	120 {12}	80 {8}	As welded
500 {51}	600 {61}	32	170 {17}	130 {13}	620℃X1hr. S-R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~100	90~130	130~190	190~250	250~300
	V&OH	60~90	80~120	110~170	–	–

Welding positions



Approved by

ABS, DNV, LR

K-8018C2

AWS E8018-C2

FOR LOW TEMPE-RATURE SERVICE STEEL

Typical applications

Welding of 3.5%Ni steel and aluminium-killed steel used at low temperature , LPG tanker where high impact properties are necessary at -73℃.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Fast, efficient metal transfer in all positions.
② Excellent notch toughness of the deposited weld metal at low temperature.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.32	1.12	3.45

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-73℃)	PWHT
580 {59}	680 {69}	22	60 {6}	As welded
570 {58}	650 {66}	23	80 {8}	620℃×1hr. S·R

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0	6.0
Length	(mm)	350	350	400	400	450
Amp.	F	60~90	90~130	135~180	190~240	250~310
	V&OH	50~80	80~120	110~170	–	–

Welding positions



Approved by

K-8018C3

AWS E8018-C3

FOR LOW TEMPE-RATURE SERVICE STEEL

Typical applications

Welding of 1%Ni and high tensile strength steel for military and commercial applications where good impact property and minimum 590N/mm² tensile strength is needed.

Coating

Low hydrogen, iron powder type.

Characteristics on Usage

① Fast, efficient metal transfer in all positions.
② Excellent deposited weld metal with both AC and DC power source.
③ Redry the electrode at 300~350℃ for 60 minutes prior to use.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Ni
0.07	0.45	0.91	1.03

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)	(-40℃)
530 {54}	600 {61}	31	80 {8}	60 {6}

Sizes available and recommended currents (AC or DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	F	60~95	90~130	135~180	190~240
	V&OH	60~90	80~120	110~170	–

Welding positions



Approved by

ABS, LR

جدول خلاصه محصولات برای Atmospheric Corrosion Resisting Steel

Product	Standard			Application
	AWS	JIS	KS	
K-71TW	E81T1-W2	YFA-50W	YFA-50W	Butt and fillet welding of 490N/mm2 class high tensile strength weather-proof steel(which is used normally without painting) for shipbuilding, bridges, containers, etc.
K-81TW	E81T1-W2	YFA-58W	YFA-58W	Butt and fillet welding of high tensile strength weather-proof steel, for example A-242 or A-588, which is used normally without painting, for shipbuilding and bridges, etc.

K-81TW

AWS E81T1-W2
JIS YFA-58W
KS YFA-58W

FOR ATMOSPHERIC CORROSION RESISTING STEEL

Typical applications

K-81TW is formulated for butt or fillet MAG welding of mild and 590MPa weather-proof steels (ASTM A67 Gr. 1; A234 Gr. WPR; A242 all; A333 Gr. 3,7; A423 Gr. 1; A588 Gr. all; A606 Gr. all; A690 Gr. all; A709 Gr. 70W; A871)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It has better CVN toughness at low temperatures when compared to the K-71TW.
③ It features excellent mechanical properties, easy slag removal, low spatter loss, smooth bead surface, high X-ray safety.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Cu
CO_2	0.05	0.54	1.20	0.55	0.55	0.45

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
CO_2	550 {56}	630 {64}	28	60 {6}

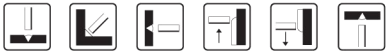
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	120~350	200~450
	H-Fil	120~350	
	V		180~220

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, CCS, DNV, GL, LR, NK, TÜV, JIS, KR

K-71TW

FOR ATMOSPHERIC CORROSION RESISTING STEEL

AWS E81T1-W2
JIS YFA-50W
KS YFA-50W

Typical applications

K-71TW is formulated for butt or fillet MAG welding of mild and 490MPa weather-proof steels
(ASTM A67 Gr. 1; A234 Gr. WPR; A242 all; A333 Gr. 3,7; A423 Gr. 1; A588 Gr. all; A606 Gr. all; A690 Gr. all; A709 Gr. 70W; A871)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains Cr, Ni, Cu alloys and has good weather-proof properties.
③ It features excellent mechanical properties, easy slag removal, low spatter loss, smooth bead surface, high X-ray safety.
④ The shielding gas should be used 100% CO2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Cu
CO_2	0.05	0.54	1.10	0.55	0.45	0.42

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
CO_2	510 {52}	590 {60}	28	40 {4}

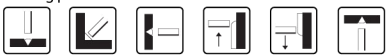
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	120~350	200~450
	H-Fil	120~350	200~400
	V	120~220	180~240

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

www.PetroJoosh.com

جدول خلاصه محصولات Electrogas Welding برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
K-EG2	EG70T-2	YFEG	-	It is formulated for welding of 490MPa high tensile steels for an automatic vertical-up butt welding with CO2 shielding gas.
K-EG3	EG70T-2	YFEG-22C	-	It is formulated for welding of 490MPa high tensile steels for a automatic vertical-up butt welding with CO2 shielding gas.

K-EG2

AWS A5.26 EG70T-2
JIS Z 3319 YFEG-21C

Electogas welding (EGW)

Typical applications

K-EG2 is formulated for welding of 490MPa high tensile steels for a automatic vertical-up butt welding with CO_2 shielding gas. Typical applications include shipbuilding, offshore constructions and general fabrications.

Characteristics on Usage

① Wire provides high deposition rate with a welding wire due to high welding condition.
② It features excellent mechanical properties, easy slag removal, low spatter loss, smooth bead surface, high X-ray safety.
③ It should be used only DCEP polarity, the flow rates of shielding gas are about 40ℓ /min.
④ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Principles

Electrogas arc welding is only vertical-up butt welding and this process uses the combination of a small diameter flux-cored wire, a slide copper shoe on the front side of a joint and a fixed backing material on the reverse side of a joint with 100%CO_2 shielding gas.





Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Mo
CO_2	0.04	0.33	1.69	0.013	0.012	0.24

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf·m} (-20℃)
CO_2	510 {52}	590 {60}	27	98 {10}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.6
Amp.	V/UP	360~420

Package

Dia. (mm)	1.6
Spool (kg)	15, 20

Welding positions



Approved by

K-EG3

Electogas welding (EGW)

AWS A5.26 EG70T-2
JIS Z 3319 YFEG-22C

Typical applications

K-EG3 is formulated for welding of 490MPa high tensile steels for a automatic vertical-up butt welding with CO_2 shielding gas. Typical applications include shipbuilding, offshore constructions and general fabrications.

Characteristics on Usage

① Wire provides high deposition rate with a welding wire due to high welding condition.
② It has better CVN toughness at low temperatures when compared to the K-EG2 and overall welding characteristics except toughness is very similar with the K-EG2.
③ It should be used only DCEP polarity, the flow rates of shielding gas are about 40ℓ /min.
④ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Principles

Electrogas arc welding is only vertical-up butt welding and this process uses the combination of a small diameter flux-cored wire, a slide copper shoe on the front side of a joint and a fixed backing material on the reverse side of a joint with 100%CO_2 shielding gas.





Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.34	1.72	0.013	0.012	1.60

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf·m} (-30℃)
CO_2	540 {55}	600 {61}	26	-60℃ : 90J

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.6
Amp.	V/UP	360~420

Package

Dia. (mm)	1.6
Spool (kg)	15, 20

Welding positions



Approved by

www.PetroJoosh.com

جدول خلاصه محصولات Gas Shielded FCW برای Hardfacing

Product	Standard			Application
	AWS	JIS	KS	
K-250HT	-	-	-	MAG welding for metal-to-metal wearing and underlayer welding of hardsurfacing. Low spatter level, easy slag removal and reduced grinding time after work hardening.
K-300HT	-	-	-	MAG welding for hardfacing and repairing of rollers shafts and wheels etc. It can be possible to get abrasion resistance with proper preheat and interpass temperature
K-350HT	-	-	-	MAG welding wire with higher hardness for metal-to-metal wear and mild abrasion. Used on transfer rollers and idlers, crane wheels and shafts etc.
K-450HT	-	-	-	MAG welding wire for metal-to-metal wearing or abrasion. The weld metal is of marten site structure and has stable hardness because it contains carbide forming elements.
K-500HT	-	-	-	K-500HT can be used on low carbon, medium carbon, low alloy, manganese steel. It is especially suitable for overlaying thin gauge materials, building up edges, crusher rolls etc.
K-600HT	-	-	-	MAG welding wire produces a deposit which resists metal-to-metal wear and mild abrasion. It can be used for crane wheels, blower blades, bucket lips, dredge parts etc.
K-700HT	-	-	-	MAG welding wire for heavy abrasion resistance with martensitic structure. It can be used for crusher hammers, ore chutes, dozer blades, ripper teeth, bucket lips, etc.
K-800HT	-	-	-	MAG welding wire for heavy abrasion resistance with martensitic structure. It can be used for Augers, bucket lips, conveyor screws, blower blades, dozer blades, etc.
K-CXA-40HT	-	-	-	MAG welding wire for metal-to-metal wearing and underlayer welding of hardsurfacing. It can be used for tractor rollers, trunnions, crane wheels, track rails, idlers, etc.
K-CXA-41HT	-	-	-	MAG welding wire for metal-to-metal wearing, abrasion and corrosion. It can be used for tractor rollers, shafts, rollers, valves, track rails, idlers, etc.

K-250HT

JIS Z 3326 YF2A-C-250

For hardfacing (Hv 250)

Typical applications

MAG welding for metal-to-metal wearing and underlayer welding of hardsurfacing. Low spatter level, easy slag removal and reduced grinding time after work hardening.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr
CO_2	0.07	0.50	1.59	0.015	0.013	1.30

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	260	24	37	150	As welded

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	10, 15, 20		

K-300HT

JIS Z 3326 YF2A-C-300

For hardfacing (Hv 300)

Typical applications

MAG welding for hardfacing and repairing of rollers, shafts and wheels etc. It can be possible to get abrasion resistance with proper preheat and interpass temperature

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr
CO_2	0.09	0.68	1.54	0.007	0.012	1.10

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	300	30	42	150	As welded

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	10, 15, 20		

For hardfacing (Hv 350)

JIS Z 3326 YF2A-C-350

K-350HT

Typical applications

MAG welding wire with higher hardness for metal-to-metal wear and mild abrasion. Used on transfer rollers and idlers, crane wheels and shafts etc

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.12	0.45	1.37	0.016	0.012	1.30	0.20

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	360	37	50	150	As welded

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	10, 15, 20		

For hardfacing (Hv 450)

JIS Z 3326 YF2A-C-450

K-450HT

Typical applications

MAG welding wire for metal-to-metal wearing or abrasion. The weld metal is of martensite structure and has stable hardness because it contains carbide forming elements.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.24	0.51	1.20	0.016	0.012	2.00	0.60

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	450	45	61	200	As welded

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	10, 15, 20		

K-500HT

JIS Z 3326 YF3B-C-500

For hardfacing
(Hv 500)

Typical applications

K-500HT can be used on low carbon, medium carbon, low alloy, manganese steel. It is especially suitable for overlaying thin gauge materials, building up edges, crusher rolls etc

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.19	2.06	0.35	0.017	0.012	5.26	0.59

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	510	50	66	200	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

K-600HT

JIS Z 3326 YF3B-C-600

For hardfacing
(Hv 600)

Typical applications

MAG welding wire produces a deposit which resists metal-to-metal wear and mild abrasion. It can be used for crane wheels, blower blades, bucket lips, dredge parts etc.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.34	2.80	0.50	0.016	0.012	6.50	0.50

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	590	55	73	200	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

K-700HT

For hardfacing
(Hv 700)

Typical applications

MAG welding wire for heavy abrasion resistance with martensitic structure. It can be used for crusher hammers, ore chutes, dozer blades, ripper teeth, bucket lips, etc.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	W
CO_2	0.40	3.20	0.60	0.017	0.013	7.00	0.80

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	690	60	80	200	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

K-800HT

For hardfacing
(Hv 750)

Typical applications

MAG welding wire for heavy abrasion resistance with martensitic structure. It can be used for Augers, bucket lips, conveyor screws, blower blades, dozer blades, etc

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	W
CO_2	0.44	3.40	0.55	0.017	0.012	7.50	1.00

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
CO_2	780	63	87	200	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

K-CXA-40HT

JIS Z 3326 YF4A-G-350

For hardfacing
(Hv 350)

Typical applications

MAG welding wire for metal-to-metal wearing and underlayer welding of hardsurfacing. It can be used for tractor rollers, trunnions, crane wheels, track rails, idlers, etc

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Ni
Ar+2%O_2	0.05	0.25	0.30	0.016	0.011	12.00	4.20

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
Ar+2%O_2	370	38	51	150	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

K-CXA-41HT

JIS Z 3326 YF4A-G-350

For hardfacing
(Hv 350)

Typical applications

MAG welding wire for metal-to-metal wearing, abrasion and corrosion. It can be used for tractor rollers, shafts, rollers, valves, track rails, idlers, etc

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cr	Ni	Mo
Ar+2%O_2	0.05	0.39	0.49	0.017	0.012	12.10	3.90	1.10

Typical mechanical properties of all-weld-metal

Shielding Gas	Typical value			Interpass Temp.(℃)	coment
	HV	HRC	HS		
Ar+2%O_2	370	38	51	150	As welded

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	10, 15, 20		

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جدول خلاصه محصولات برای Heat-resisting Steel

Product	Standard			Application
	AWS	JIS	KS	
K-81TA1	E81T1-A1	YFM-C	YFM-C	K-81TA1 is formulated for butt and fillet welding of 0.5%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc.
K-81TB2	E81T1-B2	YF1CM-C	YF1CM-C	K-81TB2 is formulated for butt and fillet welding of 1.25%Cr-0.5%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc.
K-91TB3	E91T1-B3	YF2CM-C	YF2CM-C	K-91TB3 is formulated for butt and fillet welding of 2.25%Cr-1.0%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc.
K-91TB9	E91T1-B9M	-	-	Butt and fillet welding of 9%Cr steel used for high pressure boilers, Chemical and oil refinery plants.
K-101TB9	E101T1-B9M Proposed	-	-	Butt and fillet welding of 9%Cr steel used for high pressure boilers, Chemical and oil refinery plants.

K-81TA1

AWS E81T1-A1
JIS YFM-C
KS YFM-C

FOR HEAT-RESISTING STEEL

Typical applications

K-81TA1 is formulated for butt and fillet welding of 0.5%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc.(ASTM A161 T-1; A182 F1; A204 Gr. A, B; A234 Gr. WP1; A336 Gr. F1; A352 Gr. LC1; A356 Gr. 2; A426 Gr. CP1,CP15; A533 Gr.A1)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 0.5%Mo and has good crack-resistance and heat-resistance.
③ K-81TA1 has very efficient welding due to higher deposition rate particularly.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Preheat at 100~200℃ and postheat at 620℃.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Mo
CO_2	0.024	0.55	1.21	0.016	0.013	0.53

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
CO_2	531 {54}	610 {62}	25	620℃ × 1hr

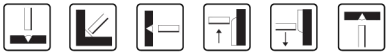
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.4
Amp.	F	140~360A	200~460A
	H-Fil	140~360A	200~460A
	V	140~260A	180~260A

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

K-81TB2

AWS E81T1-B2
JIS YF1CM-C
KS YF1CM-C

FOR HEAT-RESISTING STEEL

Typical applications

K-81TB2 is formulated for butt and fillet welding of 1.25%Cr-0.5%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc. (ASTM A182 Gr. F2,F11,F12; A193 Gr. B7; A234 Gr. WP11,WP12; A250 Gr. T11; A336 Gr. F11,F12 A356 Gr. 5,6,8,9; A387 Gr. 2,11,12; A389 Gr. C23; A672 Gr. H75, 80)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 1.25Cr, 0.5%Mo and has good crack-resistance and heat-resistance.
③ It has excellent creep rupture strength, easy slag removal and good weld soundness.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Preheat at 150~300℃ and postheat at 690℃.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Mo
CO_2	0.05	0.44	1.08	1.25	0.53

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
CO_2	530 {54}	600 {61}	25	690℃ X 1hr.

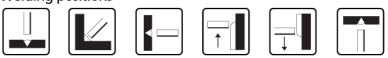
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	120~340	200~450
	H-Fil		
	V	120~220	180~240

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

K-91TB3

AWS E91T1-B3
JIS YF2CM-C
KS YF2CM-C

FOR HEAT-RESISTING STEEL

Typical applications

K-91TB3 is formulated for butt and fillet welding of 2.25%Cr-1.0%Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc. (ASTM A182 Gr. F21,F22,F22a; A193 Gr. B16; A213 Gr. T22; A250 Gr. T22; A336 Gr. F21,F22 A356 Gr. 10; A387 Gr. 21,22; A389 Gr. C24; A542 Gr. 2A, 2B; A691 Gr. 12)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 2.25Cr, 1.0%Mo and has good crack-resistance and heat-resistance.
③ It has excellent creep rupture strength, easy slag removal and good weld soundness.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Preheat at 200~350℃ and postheat at 690℃.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Mo
CO_2	0.05	0.51	1.18	2.25	1.00

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	PWHT
CO_2	630 {64}	680 {69}	24	690℃X1hr.

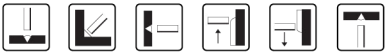
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	120~340	200~450
	H-Fil		
	V	120~220	180~240

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

K-91TB9

FOR HEAT-RESISTING STEEL

Typical applications

Butt and fillet welding of 9%Cr-1%Mo-Ni-Nb-V steel used for high pressure boilers, Chemical and oil refinery plants. It's applied for ASTM A189-F91, A199-T91, A200-T91,A213-T91,A335-P91,A369-FP91, A387-Gr91 and equivalents.

Characteristics on Usage

① All-position welding provide the metal of 9%Cr-1%Mo-Ni-Nb-V
② Excellent creep rupture strength, easy slag removal and good weld soundnees
③ The shielding gas should be used 80%Ar+20%CO_2 for welding.
④ Preheat at 200~350℃ and postheat at 720~780℃
⑤ wire should be used as soon as possible after taking out from package.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Mo	Ni	V	Nb	N
Ar+20%CO_2	0.12	0.25	0.72	10.3	1.0	0.7	0.19	0.03	0.04

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	El (%)	PWHT
Ar+20%CO_2	810 {82}	15	760℃X2hr.

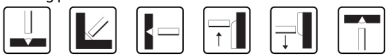
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2
Amp.	F	120~280
	H-Fil	
	V	120~220

Package

Dia.	(mm)	1.2
Spool	(kg)	15,20

Welding positions



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For heat-resisting steel (9%Cr-1%Mo-V)

AWS A5.29 E101T1-B9M Proposed

K-101TB9

Typical applications

Butt and fillet welding of 9%CrMo steels used for high pressure boilers, chemical and oil refinery plants. It is applied for ASTM A189 Gr. F91; A199 Gr. T91; A200 Gr. T91; A213 Gr. T91; A335 Gr. P91; A369 Gr. FP91; A387 Gr. 91 and other equivalents.

Characteristics on Usage

① Wire is a all-positional flux cored wire formulated to weld equivalent modified(P91) with 100%CO_2 shielding gas.
② K-101TB9 is proposed as AWS E101T1-B9M due to no current national standards.
③ Overall welding characteristics except tensile strength is very similar with the K-91TB9.
④ It has excellent creep rupture strength, easy slag removal and good weld soundness.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo	V
Ar+20%CO_2	0.12	0.26	0.72	9.60	0.78	1.00	0.20

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·P N/mm²{kgf/mm²}	El (%)	PWHT
Ar+20%CO_2	720 {73}	810 {82}	18	760℃×2hr

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2
Amp.	Flat, H-Fillet	120~280
	V	140~220

Package

Dia.	(mm)	1.2
Spool	(kg)	5, 12.5, 15, 20
Pailpack	(kg)	100~300

Welding positions



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جدول خلاصه محصولات Gas Shielded FCW برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
K-71T	E71T-1	YFW-C50DR	YFW-C50DR	Butt and fillet welding of carbon steel for machineries, cars, shipbuilding, bridges, etc.
K-71TM	E71T-1M	YFW-A50DR	YFW-A50DR	All position welding of machineries, shipbuilding, bridges, vehicles using carbon steel.
K-70TB	E70T-5M	YFW-A502B	YFW-A502B	Butt and fillet welding of fabrications such as bridges and structures.
K-70T	E70T-1/-1M	YFW-C50DM	YFW-C50DM	Flat and H-fillet welding of medium and heavy thick plate with higher deposition rate as shipbuilding, steel structures and bridges, etc.
K-70ST	E70T-1	YFW-C50DM	YFW-C50DM	For flat or horizontal fillet MAG welding mild and 490N/mm2 high tensile steel K-70ST is most suitable for welding of inorganic zinc-rich primer coated steels, often used in machinery, steel fabrications and construction industries.
KX-100	E70C-3C	YFW-C50DM	YFW-C50DM	Butt and H-fillet welding of steel structures such as construction machines, industrial machinery and buildings, etc.
KX-70CM	E70C-3M	YFW-A50DM	YFW-A50DM	Butt and H-fillet welding of steel structures such as construction machines, industrial machinery and building, etc.
KX-706M	E70C-6M	YFW-A502M	YFW-A502M	Butt and H-fillet welding of steel structures as construction machines, industrial machinery and building, etc.
KX-200	E70T-1	YFW C50DM	YFW C50DM	Flat and H-filet welding of medium and heavy thick plate with higher deposition rate as shipbuilding, steel structures and bridges, etc.
KX-200H	E70T-1	YFW-C50DM	YFW-C50DM	For flat or horizontal fillet (tandem) MAG welding of mild and 490N/mm2 high tensile steel. KX-200H is most suitable for filet welding of inorganic zinc-rich primer coasted steels, often used in the machinery, steel fabrication and bridge construction industries. Welding speed is very high(Twin-Tandem 1000mm/min)
K-61T	E61T-G	YFW-A430R	YFW-A430R	K-61T is designed for MAG welding of POS-AG steel and low silicon steel for single and multi-pass applications.
K-71TLF	E71T-1/ -1M	YFW-C502R	YFW-C502R	K-71TLF is formulated for welding of 490MPa high tensile steel with outstanding mechanical properties. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
K-71TB	E71T-5/-5M	YFW-A502B	YFW-A502B	K-71TB is designed for the semi-automatic welding of carbon steels, and for the welding of higher strength steels in applications where the risk of hydrogen-induced cracking is to be avoided.
K-55T	-	-	YFW-C50DR	For shielding arc welding of 520MPa high tensile steel with fast freezing slag system.
KX-55	-	-	YFW-C50DM	For shielding arc welding of 520MPa high tensile steel with slow freezing slag system.
K-81T	E81T1-Ni1	YFW-C602R	YFW-C602R	Flat and fillet welding of medium and heavy thick plate such as shipbuilding, steel structures and bridges, etc.
K-82T	E81T1-Ni2	-	-	For welding of 600N/mm2 class aluminium-killed steel for low-temperature service. The weld metal about 2.0% Ni and good impact value (as-welded) at low temperatures down to -40C.
KX-300	E80T1-Ni1	YFW-C602M	YFW-C602M	For flat or horizontal fillet(tandem) MAG welding of mild and 590N/mm2 high tensile steel. KX-300 is recommend for petro-chemical applications, the machinery, steel fabrications and bridge construction industries. The wire is intended for use with 100% CO2 for shieling.
K-110TK3	E110T1-K3	-	-	For high strength steel application as HY 80Grade and ASTM A514/A517/A710, It si well suited for joining high tensile steels that will be used in used in al low temperature environment.
K-81TM	E81T1-Ni1M	YFW-A604R	YFW-A604R	For welding of 560MPa high tensile steel with fast freezing slag system.
K-80ST	E80T1-NI1C	YFW-C602R	YFW-C602R	For welding of 560MPa high tensile steel with outstanding mechanical properties.
K-82TM	E81T1-NI2M	-	-	For flat or horizontal fillet (tandem) MAG welding of mild and 590N/mm2 high tensile steel. KX-300 is recommended for petro-chemical applications, the machinery, steel fabrications and bridge construction industries. The wire is intended for use with 100% CO2 for shieling.
K-115TK4M	E110T1-K3	-	-	A high-strength flux cored wire that is comparable to low alloy E11018M but with higher deposition rates.
K-91T	E91T-G	YFW-C602R	YFW-C602R	Designed for welding of 630Mpa high tensile steel for low temperature service.

K-71T

AWS E71T-1
JIS YFW-C50DR
KS YFW-C50DR

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-71T is designed for welding of 490MPa high tensile steel with slow freezing slag system. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It features excellent mechanical properties, easy slag removal, low spatter loss smooth bead surface, high X-ray safety.
③ K-71T has very efficient welding due to higher deposition rate particularly.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.04	0.45	1.30	0.015	0.012

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m}(-20℃)
CO_2	520 {53}	580 {59}	29	50 {5}

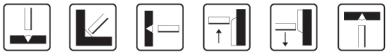
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	120~300	200~400
	H	120~300	200~400
	V	120~250	180~220

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

ABS, BV, CCS, CWB, DNV, GL, KR, LR, NK, RINA, JIS, KS

K-71TM

AWS E71T-1M
JIS YFW-A502R
KS YFW-A502R

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-71TM is designed for welding of 490MPa high tensile steel with only Ar/CO_2 mixtures. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It provides soft welding arc and less spatter levels due to the usage of mixture gas.
③ K-71TM has very efficient welding due to higher deposition rate particularly.
④ The shielding gas should be used Ar+20~25%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
Ar+20%CO_2	0.03	0.59	1.44	0.013	0.014

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
Ar+20%CO_2	500 {51}	520 {58}	28	80 {8}

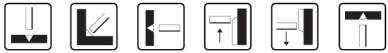
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	120~300	200~400
	H-Fil		
	V-up	120~220	180~240

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, DNV, LR, RINA, TÜV, JIS, KS

www.PetroJoosh.com

FOR HIGH TENSILE STRENGTH STEEL

AWS E70T-1/-1M
JIS YFW-C50DM
KS YFW-C50DM

K-70T

Typical applications

K-70T is designed for welding of 490MPa high tensile steel with outstanding mechanical properties. Typical applications include machineries, shipbuilding, offshore structuresbridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② It has better excellent deposition rate when compared to conventional K-71T wire.
③ It also provides smooth arc, low spatter levels, beautiful bead appearance.
④ The shielding gas should be used 100%CO_2 or Ar+20~25%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.03	0.50	1.45	0.014	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
CO_2	540 {55}	570 {58}	25	65 {7}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F H-Fil	140~340	200~460

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

JIS, KS

FOR HIGH TENSILE STRENGTH STEEL

AWS E70T-5M
JIS YFW-A502B
KS YFW-A502B

K-70TB

Typical applications

K-70TB is designed for welding of 490MPa high tensile steel with only Ar/CO_2 mixtures. Typical applications is general fabrication where the risk of hydrogen-induced cracking is to be avoided.

Characteristics on Usage

① Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
② It has good CVN toughness at low temperatures and the weldability is excellent with lower crack susceptibility.
③ It provides soft welding arc and low spatter levels due to the usage of mixture gas
④ The shielding gas should be used Ar+20~25%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
Ar+20%CO_2	0.04	0.34	1.30	0.016	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
Ar+20%CO_2	490 {50}	550 {56}	29	50 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F H-Fil	120~300	200~450

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

www.PetroJoosh.com

K-70ST

AWS E70T-1
JIS YFW-C502R
KS YFW-C502R

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-70ST is designed for welding of 490MPa high tensile steel with outstanding mechanical properties. It is most suitable for fillet welding of inorganic zinc-primer coated steels often used in the machineries, steel fabrications and construction industries.

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and horizontal position welding.
② K-70ST has very efficient welding due to higher deposition rate particularly.
③ The arc characteristics are so smooth and stable, even the most novice welder can produce good welds.
④ It has easy slag removal and bigger leg of fillet welding is easier.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.04	0.49	1.36	0.015	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-20℃)
CO_2	484 {49}	584 {59}	28	60 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	140~340	200~460
	H-Fil	160~360	200~460

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

KX-100

AWS E70C-3C
JIS YFW-C50DM
KS YFW-C50DM

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② Deposition rate is up to 20% higher than a solid wire's one.
③ Slag quantity is almost the same as a solid wire and multiple pass welding can be performed without removing slag.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.04	0.54	1.55	0.014	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-20℃)
CO_2	510 {52}	550 {56}	29	60 {6}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	140~340	200~460
	H-Fil		

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

www.PetroJoosh.com

KX-70CM

AWS E70C-3M
JIS YFW - A50DM
KS YFW - A50DM

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

KX-70CM is designed for welding of 490MPa high tensile steel with only Ar/CO_2 mixtures. It is especially suitable for fillet welding and has a high tolerance to primer.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② Slag quantity is almost the same as a solid wire and multiple pass welding can be performed without removing slag.
③ 20% higher productivity can be achieved when compared to solid wires.
④ KX-70CM is intended for semi-automatic, automatic, single- and multiple pass welding.
⑤ The shielding gas should be used Ar+20~25%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
Ar+20%CO_2	0.03	0.40	1.60	0.014	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
Ar+20%CO_2	480 {49}	540 {55}	29	55 {6}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	160~340	180~420	240~450
	H-Fil	180~350	220~380	280~450

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, DNV, GL, LR; RINA, JIS, KS
(80%Ar+20%CO_2:TÜV)

KX-706M

AWS E70C-6M
JIS YFW - A502M
KS YFW - A502M

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

KX-706M is designed for welding of 490MPa high tensile steel with only Ar/CO_2 mixtures. It is especially suitable for fillet welding and has a high tolerance to primer.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② It has better CVN toughness at low temperatures when compared to the KX-70CM.
③ It features good penetration, high resisitance to porosity, good wetting behaviour as well as low hydrogen contents.
④ KX-706M is intended for semi-automatic, automatic, single- and multiple pass welding.
⑤ The shielding gas should be used Ar+20~25%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
Ar+20%CO_2	0.04	0.60	1.50	0.014	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
Ar+20%CO_2	530 {54}	610 {62}	27	55 {6}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	160~350	220~450
	H-Fil	180~360	280~450

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, CWB, DNV, GL, LR, RINA, JIS, KS
(Ar+2~20%CO_2:CWB)

www.PetroJoosh.com

KX-200

AWS E70T-1
JIS YFW C50DM
KS YFW C50DM

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

KX-200 is designed for welding of 490MPa high tensile steel with outstanding mechanical properties. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② It provides excellent usability with stable arc, low spatter levels and deposition rate is much higher than a titania type.
③ It has good porosity resisitance and is applicable for fillet welding of inorganic zinc- primer coated steels
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.04	0.41	1.25	0.014	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
CO_2	510 {52}	550 {56}	27	50 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	140~340	200~460
	H-Fil		

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

ABS, BV, CCS, DNV, GL, KR, LR, NK, TÜV, JIS, KS
(80%Ar + 20%CO_2)

KX-200H

AWS E70T-1
JIS YFW-C502M
KS YFW-C502M

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

KX-200H is designed for welding of 490MPa high tensile steel with outstanding mechanical properties. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② It has better CVN toughness at low temperatures when compared to the KX-200.
③ It has good porosity resisitance and is applicable for fillet welding of inorganic zinc- primer coated steels
④ KX-200H is intended for semi-automatic, automatic, single- and multiple pass welding.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.037	0.56	1.61	0.013	0.012

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
CO_2	517 {53}	610 {62}	28	70 {7}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	160 - 340A	180 - 400A	160 - 460A
	H-Fil	180 - 360A	180 - 420A	180 - 460A

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg))	100~300		

Welding positions



Approved by

ABS, DNV, GL, KR, LR, JIS, KS

www.PetroJoosh.com

FOR HIGH TENSILE STRENGTH STEEL

AWS E71T-1/-1M
JIS YFW-C502R
KS YFW-C502R

K-71TLF

Typical applications

K-71TLF is formulated for welding of 490MPa high tensile steel with outstanding mechanical properties. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It provides low fume generation and has good impact strength at low temperatures
③ It also provides excellent usability with stable arc, less spatter levels, better bead appearance as the same as that of a solid wire.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.03	0.38	1.35	0.015	0.010

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
CO_2	520 {53}	570 {58}	28	80 {8}

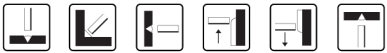
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	120~300	200~450
	H	120~300	200~400
	V	120~250	180~220

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		
Pailpack (kg)	100~300		

Welding positions



Approved by

ABS, BV, CCS, DNV, GL, KR, LR, NK, RINA, TÜV, JIS, KS
(80%Ar+20%CO_2:ABS, BV, DNV, GL, LR, TÜV)

FOR MILD STEEL

AWS E61T-G
JIS YFW-A430R
KS YFW-A430R

K-61T

Typical applications

K-61T is designed for MAG welding of POS-AG steel and low silicon steel for single and multi-pass applications.

Characteristics on Usage

① Wire is a titania type flux cored wire applicable for all-position welding.
② It is applicable to use 400MPa class tensile strength steel welding.
③ It provides smooth arc and low spatter generation, good slag removal in using shielding gas 75~80%Ar+CO_2.
④ It is free from porosity and good radiographic soundness.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
Ar+20%CO_2	0.03	0.12	0.80	0.013	0.012

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
Ar+20%CO_2	395 {40}	487 {49}	31	30 {3}

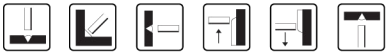
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	F	140~340A	180~440A	200~460A
	H	140~340A	180~440A	200~460A
	V	140~260A	180~260A	200~260A

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

www.PetroJoosh.com

K-71TB

AWS E71T-5/-5M
JIS YFW-A502B
KS YFW-A502B

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-71TB is designed for the semi-automatic welding of carbon steels, and for the welding of higher strength steels in applications where the risk of hydrogen-induced cracking is to be avoided.

Characteristics on Usage

① Wire is a basic slag type flux cored wire provided low crack sensitivity on certain problem steels.
② It has excellent CVN impact properties at sub-zero temperatures.
③ It provides good arc stability, low spatter generation, high efficiency, good bead.
④ The shielding gas should be used 100%CO_2 or Ar+20~25%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.02	0.60	1.60	0.015	0.013

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-30℃)
CO_2	550 {59}	610 {63}	30	50 {5}

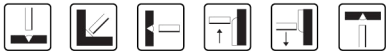
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2
Amp.	F	160~300
	H	160~320
	V	160~240

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

K-55T

JIS Z 3313 YFW-C55DR

For 520MPa high Tensile steel

Typical applications

K-55T is formulated for shielding arc welding of 520MPa high tensile steel with fast freezing slag system. Typical applications include machineries, bridges and general fabrications.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It is designed for 520MPa high tensile steel with improved cracking resistance.
③ Overall welding characteristics except tensile strength is very similar with the K-71T.
④ If features excellent mechanical properties, easy slag removal, low spatter generation, smooth bead surface and high X-ray safety.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.043	0.50	1.21	0.013	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (0℃)
CO_2	538 {55}	615 {63}	29	63 {7}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat, H-Fillet	120~320	140~360	180~450
	V	140~240	160~260	180~260

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		
Pailpack (mm)	100~300		

Welding positions



Approved by

For 520MPa high Tensile steel

JIS Z 3313 YFW-C55DM

KX-55

Typical applications

KX-55 is formulated for shielding arc welding of 520MPa high tensile steel with slow freezing slag system. Typical applications include machineries, bridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizantal position welding.
② It is designed for 520MPa high tensile steel with improved cracking resistance.
③ Overall welding characteristics except tensile strength is very similar with the KX-200.
④ It has good porosity resistance and is applicable for fillet welding of inorganic zinc-primer coated steel.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.027	0.54	1.57	0.014	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (0℃)
CO_2	540 {55}	630 {64}	26	104 {10.6}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat	140~320	180~360	200~400
	H-Fillet	160~340	180~380	200~420

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(mm)	100~300		

Welding positions



Approved by

K-81T

AWS A5.29 E81T1-Ni1C
JIS Z 3313 YFW-C602R
KS D 7104 YFW-C602R

For 560MPa high Tensile steel

Typical applications

K-81T is designed for welding of 560MPa high tensile steel with fast freezing slag system. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It provides good wet-in capabilities along with high impact values at low temperatures.
③ It allows you to weld over rust, mill scale and some primers without the need for pre-cleaning.
④ It also provides smooth arc, low spatter levels, beautiful bead appearance.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 162 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Ni	Mo
CO_2	0.04	0.35	1.17	0.92	0.2

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
CO_2	590 {60}	650 {66}	28	120 {13}

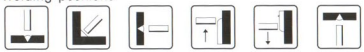
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	120~320	200~450
	H-Fil	120~220	180~230
	V		

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

www.PetroJoosh.com

KX-300

AWS E80T1-Ni1
JIS YFW-C602M
KS YFW-C602M

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

KX-300 is designed for welding of 590MPa high tensile steel with rapid fillet welding in HV position. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② It provides excellent usability with stable arc, low spatter levels and deposition rate is much higher than a titania type.
③ KX-300 is intended for semi-automatic, automatic, single- and multiple pass welding.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.024	0.47	1.34	0.014	0.013	0.97

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
CO_2	610 {62}	640 {65}	25	47 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	160~340A	180~400A	200~460A
	H-Fil	180~360A	180~420A	200~460A

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

FOR HIGH TENSILE STRENGTH STEEL

AWS E81T1-Ni2

K-82T

Typical applications

K-82T is formulated for welding of 590MPa high tensile steel with outstanding mechanical properties. It is the most suitable for butt welding of aluminium-killed steels often used in the machineries, steel fabrications and construction industries.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 2.0%Ni and has good impact value at low temperatures down to -40℃.
③ It features excellent mechanical properties, easy slag removal, low spatter loss,smooth bead surface, high X-ray safety.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.48	1.26	0.011	0.009	2.0

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-40℃)
CO_2	584 {59}	673 {68}	24	50 {5}

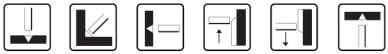
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	140~360	200~420
	H-Fil		
	V	140~260	180~260

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

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K-80ST

AWS A5.29 E80T1-Ni1C
JIS Z 3313 YFW-C602R
KS D 7104 YFW-C602R

For 560MPa high Tensile steel

Typical applications

K-80ST is designed for shielding arc welding of 560MPa high tensile steel with outstanding mechanical properties. It is most suitable for fillet welding of inorganic zinc-primer coated steels often used in the machineries, steel fabrications and construction industries.
(ASTM A537, JIS SM520 / 540 / 570)

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and hofizotal position welding with 1.0% Nickel component.
② Overall welding characteristics except tensile strength is very similar with the K-70ST.
③ It has very efficient welding due to higher deposition rate particularly.
④ It has easy slag removal and bigger leg of fillet welding is easier.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.032	0.48	1.42	0.012	0.013	0.91

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-30℃)
CO_2	560 {57}	637 {65}	26	45 {4.6}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat	140~320	180~360	200~400
	H-Fillet	160~340	180~380	200~420

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

K-81TM

For 560MPa high Tensile steel

AWS A5.29 E81T1-Ni1M
JIS Z 3313 YFW-A604R
KS D 7104 YFW-A604R

Typical applications

K-81TM is designed for welding of 560MPa high tensile steel with fast freezing slag system. Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications(ASTM A537, JIS SM520 / 540 / 570)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding with 1.0%Ni component.
② It provides good wet-in capabilities along with high impact values at low temperatures.
③ It also provides smooth arc, low spatter levels, beautiful bead appreance.
④ The shielding gas should be only used 80%Ar+20%CO_2 for welding.
⑤ Refer to page 162 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
Ar+20%CO_2	0.02	0.51	1.28	0.013	0.014	1.04

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-29℃)
Ar+20%CO_2	580 {59}	630 {64}	28	62 {6.3}

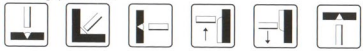
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	160~260	180~300	200~340
	H-Fil			
	V	140~220	160~240	180~260

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

www.PetroJoosh.com

For 560MPa high Tensile steel

AWS A5.29 E81T1-Ni2M

K-82TM

Typical applications

K-82TM is formulated for welding of 560MPa high tensile steel with outstandingmechanical properties. It is the most suitable for butt welding of aluminum-killed steelsoften used in the machineries, steel fabrications and construction industries.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 2.0%Ni and has good impact value at low temperature down to -40℃.
③ It features excellent mechanical properties, easy slag removal, low spatter loss, smooth bead surface, high X-ray safety.
④ The shielding gas should be only used 80%Ar+20%CO_2 for welding.
⑤ Refer to page 162 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
Ar+20%CO_2	0.02	0.42	1.16	0.012	0.01	1.85

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf·m} (-40℃)
Ar+20%CO_2	585 {59}	645 {65}	27	75 {7.6}

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	F	160~260	180~300	200~340
	H-Fil			
	V	140~220	160~240	180~260

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		
Pailpack (kg)	100~300		

Welding positions



Approved by

K-115TK4M

AWS A5.29 E110T5-K4M

For 760MPa high Tensile steel

Typical applications

A high-strength flux cored wire that is comparable to a low alloy E11018M electrode but with higher deposition rates. It is used for welding A514, A517, HY100 and similar quenched and tempered high-strength, low alloy steel, producing a low hydrogen deposit with basic slag system.

Characteristics on Usage

① Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
② It has high deposition rate than E11018M stick electrode and provides increased weld toughness for critical welds at low temperature.
③ It provides soft welding arc, high deposition rate and low spatter levels due to the usage of mixture gas.
④ The shielding gas should be used Ar+20~25%CO_2 for welding.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
20%CO_2	0.03	0.35	1.43	0.44	1.85	0.42

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf·m} (-51℃)
20%CO_2	830 {84}	875 {89}	18	50 {5.1}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat	120~240	140~320	180~360
	H-Fillet			

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

JIS, KS

www.PetroJoosh.com

FOR HIGH TENSILE STRENGTH STEEL

AWS E91T1-Ni1
JIS YFW-C602R
KS YFW-C602R

K-91T

Typical applications

K-91T is designed for welding of 630MPa high tensile steel for low temperature service.It is a superior choice for all-position work with many high-strength low alloy ls, such as steeASTM A302, A572, A575, A734

Characteristics on Usage

① Wire is a titania type of flux cored wire for 630MPa class tensile strength steel welding.
② K-91T is recommended for single-and multiple-pass welding in all position with 100% CO_2 shielding gas.
③ It makes good low temperature toughness after PWHT at low temperatures down to -40℃.
④ It is characterized by welder appeal, with a smooth stable arc, low smoke and spatter levels.
⑤ In case of heavy plate welding, preheat at 50~150℃.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.027	0.42	1.37	0.013	0.012	0.93

Typical mechanical properties of all-weld-metal

PWHT	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-30℃)
As welded	650 {66}	725 {74}	22	130 {13}
620℃×2hr.	610 {62}	670 {68}	26	60 {6}

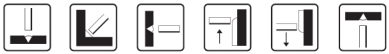
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2
Amp.	F	160~300
	H-Fil	160~320
	V	160~240

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

K-110TK3

AWS E110T1-K3

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-110TK3 is a flux cored wire that is compared to a low alloy E11018M electrode but with higher deposition rates. It is well suited for joining high tensile steels that will be used a low temperature environment (ASTM A514; A517; A710, JIS G 3128 SHY, HY-80 Grade)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 2.0%Ni and has good impact value at low temperatures.
③ In case of heavy plate welding, preheat at 50~150℃.
④ The shielding gas should be used 100% CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni	Mo
CO_2	0.04	0.51	1.72	0.014	0.012	2.04	0.42

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-20℃)
CO_2	751 {77}	834 {85}	21	80 {8}

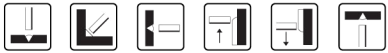
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	160~360	200~460
	H-Fil		
	V	140~260	180~260

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, CWB

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جدول خلاصه محصولات برای Low Temperature Service Steel

Product	Standard			Application
	AWS	JIS	KS	
K-80TK2	E80T1-K2	YFL-C506M	YFL-C506M	K-80TK2 is designed for welding of 590MPa high tensile steel for low temperature service. Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc.
K-81TK2	E81T1-K2	YFL-C506R	YFL-C506R	K-81TK2 is designed for welding of 590MPa high tensile steel for low temperature service. Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc.
K-71UT	E71T-1/-9J	YFL-C504R	YFL-C504R	K-71UT is designed for welding of 490MPa low temperature steels with slow freezing slag system. It can be used in a variety of applications including railcar, automotive, machinery, shipbuilding, bridges, heavy equipment etc.
K-71TSR	E71T-12J H4	YFL-C504R	YFL-C504R	K-71TSR can be used in a variety of applications including railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc. (NACE/API steel)All position for 0.4%Ni alloyed flux cored arc welding wire with 100%CO2 shielding gas.
K-81TSR	E81T1-K2	YFL-C506R	YFL-C506R	K-81TSR is designed for welding of 590MPa high tensile steel for low temperature service. Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc. It can be acceptable for CTOD characteristics.
K-71TP	E71T-1C/-1M-12C/-12M	-	-	K-71TSR can be used in a variety of applications including shipbuilding, pressure vessels, bridges, construction industries etc.
K-91TK2	E91T1-K2C	YFL-C504R	YFL-C504R	K-81TSR is designed for welding of 560MPa high tensile steel for low temperature service.

K-81TK2

AWS E81T1-K2
JIS YFL-C506R
KS YFL-C506R

FOR LOW TEMPERATURE SERVICE STEEL

Typical applications

K-81TK2 is designed for welding of 590MPa high tensile steel for low temperature service. Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains about 1.5%Ni and has good impact value at low temperatures down to -60℃.
③ It provides excellent usability with stable arc, low spatter levels and deposition rate.
④ It has good porosity resisitance and is applicable for fillet welding of inorganic zinc-primer coated steels
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Ni
CO_2	0.03	0.46	1.45	1.5

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-60℃)
CO_2	610 {62}	660 {67}	25	60 {6}

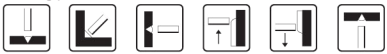
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F / H-Fil	120~340	200~450
	V	120~320	180~240

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

K-80TK2

AWS E80T1-K2
JIS YFL-C506M
KS YFL-C506M

FOR LOW TEMPERATURE SERVICE STEEL

Typical applications

K-80TK2 is designed for welding of 590MPa high tensile steel for low temperature service. Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc.

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② The weld metal contains about 1.5%Ni and has good impact value at low temperatures down to -60℃.
③ It provides excellent usability with stable arc, low spatter levels and deposition rate is much higher than a titania type.
④ It has good porosity resisitance and is applicable for fillet welding of inorganic zinc-primer coated steels
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Ni
CO_2	0.03	0.45	1.50	1.5

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-60℃)
CO_2	550 {56}	640 {65}	25	50 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F H-Fil	120~340	200~450

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

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K-71TSR

AWS E71T-12CJ H4
JIS YFL-C504R
KS YFL-C504R

FOR LOW TEMPE RATURE SERVICE STEEL

Typical applications

K-71TSR can be used in a variety of applications including railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc. (NACE/API steel)All position for 0.4%Ni alloyed flux cored arc welding wire with 100%CO_2 shielding gas.

Characteristics on Usage

① Wire is a titania type flux cored wire applicable for all-position welding.
② It is applicable to use 490MPa class tensile strength steel welding.
③ It provides excellent imt low temperature down to -40℃ in the as-welded as well as PWHT conditions.
④ K-71TSR has easy slag removal, good weld sounpact value adness, low spatter generation.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.021	0.45	1.41	0.014	0.013	0.41

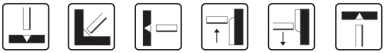
Typical mechanical properties of all-weld-metal

PWHT	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-40℃)
As welded	578 {59}	612 {63}	25	119 {12}
620℃ X2hr.	558 {57}	600 {61}	27	52 {5}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2
Amp.	F	160~300
	H-Fil	160~320
	V	160~240

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK

K-71UT

FOR LOW TEMPE RATURE SERVICE STEEL

AWS E71T-1/-9J
JIS YFL-C504R
KS YFL-C504R

Typical applications

K-71UT is designed for welding of 490MPa low temperature steels with slow freezing slag system. It can be used in a variety of applications including railcar, automotive, machinery, shipbuilding, bridges, heavy equipment etc.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It has good impact value at low temperatures down to -40℃
③ K-71UT features easy slag removal, good weld soundness, low spatter generation.
④ The shielding gas should be used 100%CO2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.30	1.35	0.013	0.012	0.39

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-40℃)
CO_2	540 {55}	600 {61}	27	55 {5}

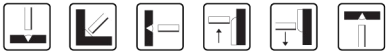
Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	140~360	180~460
	H-Fil		
	V	140~260	180~260

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS

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K-71TP

AWS A5.20 E71T-1C/-1M 12C/-12M

For low temperature Service steel (ASEM Code)

Typical applications

K-71TP can be used in a variety of applications including shipbuilding, pressure vessel, bridges, construction industries etc. This wire can provide for high impact toughtness and lower Mn that is required in ASME Boiler and Pressure Vessel Code with CO_2 and 20%CO_2-Ar shielding gas.

Characteristics on Usage

① Wire is a titania type flux cored wire applicable for all-position welding.
② It is applicable to use 490MPa class tensile strength steel welding.
③ It provides improved impact toughtness and lower Mn content that is reqired in ASME-Boiler and Pressure Vessel Code, Section IX. for decreasing in tensile strength and hardness.
④ K-71TP has easy slag removal, good weld soundness, low spatter generation.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S
CO_2	0.025	0.43	1.12	0.011	0.011
20%CO_2	0.027	0.60	1.40	0.011	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · P N/mm²{kgf/mm²}	El (%)	CharpyV-notch J{kgf · m} (-30℃)
CO_2	560 {57}	580 {59}	28	75 {7.7}
20%CO_2	580 {59}	610 {62}	27	100 {10}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4
Amp.	Flat, H-Fillet	140~280	160~320
	V	160~240	180~260

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		
Pailpack (mm)	100~300		

Welding positions



Approved by

K-81TSR

FOR LOW TEMPERATURE SERVICE STEEL

AWS E81T1-K2
JIS YFL-C506R
KS YFL-C506R

Typical applications

K-81TSR is designed for welding of 590MPa high tensile steel for low temperature service.Butt and fillet MAG welding of offshore structures, LNG and LPG carriers and storage tank, etc. It can be acceptable for CTOD characteristics.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② K-81TSR makes weld metal with 1.5%Ni and good impact value after PWHT at low temperatures down to -60℃.
③ Welding heat input must be controlled in order to get required impact value since notch toughness tends to decrease due to excessive heat input.
④ It provides smooth arc and low spatter generation, good slag removal in using shielding gas 100%CO_2.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.024	0.31	1.21	0.011	0.010	1.47

Typical mechanical properties of all-weld-metal

PWHT	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-60℃)
As welded	570 {58}	640 {65}	25	97 {10}
620℃X2hr.	520 {53}	600 {61}	29	57 {6}

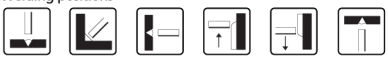
Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2
Amp.	F	160~300
	H-Fil	160~320
	V	160~240

Package

Dia. (mm)	1.2	1.4	1.6
Spool (kg)	5, 12.5, 15, 20		

Welding positions



Approved by

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K-91TK2

AWS A5.29 E91T1-K2C
JIS Z 3313 YFL-C604R
KS D 7104 YFL-C604R

For low temperature Service steel (620MPa)

Typical applications

K-91TK2 is designed for welding of 620MPa high tensile steel for low temperature service and is also recommended for other high streng steel applications where weld metal with 620~760MPa tensile strength is appropriate.(A514, A710, HY-80 and other quenched and tempered steels)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② K-91TK2 makes weld metal with 1.5%Ni and good impact value at low temperature down to -60℃.
③ It reduce the tendency for cracking in highly restrained joints.
④ It offers good weldability together with excellent properties for the semi-automatic and automatic welding of many higher strength steels.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.45	1.27	0.015	0.01	1.45

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf·m} (-51℃)
CO_2	610 {62}	660 {67}	26	75 {7.6}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat, H-Fillet	140~320	180~320	200~400
	V	160~340	180~260	200~420

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(mm)	100~300		

Welding positions



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پتروجوش پایا
نماینده انحصاری Kiswel

For corrosion resisting steel against sulfic acid

JIS Z3313 YFW-C50GR

K-71TS

Typical applications

K-71TS is designed for the all-position welding of mild and medium tensile steels that are used for the flue gas desulfurization facilities. And it has excellent anticorrosion characteristics and high temperature strength.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② The weld metal contains Cu, Co alloys and has good anticorrosion aginst sulfic acid.
③ It features excellent mechanical properties, easy slag removal, low spatter loss, smooth bead surface, high X-ray safety.
④ The shielding gas should be used 100%CO_2 for welding.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Cu	Co
CO_2	0.02	0.40	1.00	0.013	0.013	0.38	0.10

Typical mechanical properties of all-weld-metal

Shielding Gas	Room Temp. Y·P N/mm²{kgf/mm²}	Room Temp. T·P N/mm²{kgf/mm²}	El (%)	Temp.(500℃) T·P N/mm²{kgf/mm²}	Charpy V-notch J{kgf·m} (0℃)
CO_2	520 {53}	580 {59}	28	420 {43}	64 {6.5}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4
Amp.	Flat, H-Fillet	140~320	160~320
	V	160~240	180~260

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(mm)	100~300		

Welding positions



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جدول خلاصه محصولات برای Stainless Steel

Product	Standard			Application
	AWS	JIS	KS	
K-308T	E308T0-1/-4	YF308C	YF308C	K-308T is formulated for MAG welding of 18%Cr-8%Ni stainless steels. It is designed for operation primarily in the flat position and for welding horizontal fillet welds
K-308LT	E308LT1-1/-4	YF308LC	YF308LC	K-308LT is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steels. (AISI 304, 304L, 304LN, ASTM A157 Gr. C9; A320 Gr. B8C or D)
K-309T	E309T0-1/-4	YF309C	YF309C	K-309T is formulated for MAG welding of 22%Cr-12%Ni stainless steels. Typical applications are for welding of dissimilar steels, such as 304 to mild steel or low alloy steels.
K-309LT	E309LT1-1/-4	YF309LC	YF309LC	K-309LT is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels. Dissimilar joint welds; of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritin Cr- and austenitic Cr-Ni-steels, manganese steels. Cladding; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N.
K-309LMT	EC309L	YF309LG	YF309LG	K-309LMT is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels. It is suitable for automotive exhaust fabricators such as front pipe, bellows, and flange. (AISI 409, 436, cladding and dissimilar joint welds)
K-309MoLT	E309LMoT1-1	YF309MoLC	YF309MoLC	K-309MoLT is designed for MAG welding of low carbon 22%Cr-12%Ni-Mo stainless steels. Dissimilar joint welds; of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritic Cr- and austenitic Cr-Nisteels, manganese steels. Cladding; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N.
K-312T	E312T1-1	-	-	K-312T is formulated for MAG welding of 30%Cr-9%Ni stainless steels. It is used for joining dissimilar steels, steels with reduced weldability and buffer layers prior to hardfacing (rolls, forging dies, hotwork tools, dies for plastics and so on)
K-316T	E316T0-1/-4	YF316C	YF316C	K-316T is formulated for MAG welding of 18%Cr-12%Ni-2%Mo stainless steels where increased resistance to pitting corrosion is required (AISI 316, 316L)
K-316LT	E316LT1-1/-4	YF316LC	YF316LC	K-316LT is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steels. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal (AISI 316L, 316Ti, 316Cb)
K-317LT	E317LT1-1	YF317LC	YF317LC	K-317LT is designed for MAG welding of low carbon 19%Cr-13%Ni-3%Mo stainless steels. The principal area of plication is process and chemical plant, shipbuilding as well as clear plant industries.
K-329T	E2209T1-1/4	-	-	K-329T is formulated for MAG welding of 23%Cr-9%Ni-3%Mo duplex stainless steels. The principal area of application is chemical plant and shipbuilding as well as nuclear plant industries.
K-347T	E347T1-1	YF347C	YF347C	K-347T is formulated for MAG welding of 18%Cr-8%Ni-Nb stainless steels.
K-409TiT	EC409	-	-	K-409TiT is developed to meet the needs of the auto-motive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode.
K-410T	E410T0-1/-4	YF 410C	YF 410C	K-410T is designed for MAG welding of martensite stainless alloys of the 13%Cr types. It is used for surfacing of sealing faces of valves for gas, water, and steam piping system at service temperatures up to 450°
K-410NiMoT	E410NiMoT0-4	-	-	K-410NiMoT is designed for MAG welding of soft-martensite stainless alloys of the 13%Cr-4%Ni-Mo types.
K-430T	E430T0-G	YF430G	YF430G	K-430T is designed for MAG welding of ferrite stainless alloys of the 17%Cr-Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc.

جدول خلاصه محصولات برای Stainless Steel

K-436T	-	-	-	K-436T is designed for MAG welding of stainless steels of the 17%Cr-1% Mo-Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc.
K-439T	-	-	-	K-439T is designed for MAG welding of stainless steels of the 18%Cr-1%Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc.
K-309LF	E309LT0 -1/-4	YF309LC	YF309LC	K-309LF is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steel. Dissimilar joint welds; of and between high-strength, mild steels and low alloyed QT-steels, stainless, ferritic Cr-and austenitic Cr-Ni-steels, manganese steels. Cladding ; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N
K-316LF	E316LT0-1/-4	YF316LC	YF316LC	K-316LF is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steel.
K-409TiC	EC409	-	-	K-409TiC is developed to meet the needs of the auto-motive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode.
K-308HT	E308HT1-1/-4	-	-	MAG welding of high carbon 18%Cr-8%Ni Stainless steel and is recommended to be used for high temperature service (about 600C).
K-308LS	E308LT1-1/-4	YF308LC	YF308LC	MAG welding of low carbon 18%Cr-8%Ni Stainless steel and is recommended to be used for low temperature service (about -196C).
K-316LS	E316LT1-1	YF316LC	YF316LC	MAG welding of low carbon 18%Cr-8%Ni-2%Mo stainless steels and is recommended to be used for low temperature service (about -196C).
K-329TE	-	-	-	For MAG welding of 22%Cr-9%Ni-3%MnMo lean duplex stainless steels.
K-325T	E2553T0	YF316LC	YF316LC	For MAG welding of 25%Cr-9%Ni-3%MoCu duplex stainless steels.
K-430LNb	-	-	-	Mag welding of stainless steels of the 18%CrNb steels.
K-308LF	E308 LT0-1/-4	-	-	It is designed for MAG welding of low carbon 18%Cr–8%Ni stainless steel & used to join 301,302,304 & 308 stainless steel.

تلفن : ۶۶۷۵۲۷۹۲ – ۶۶۷۵۲۷۹۱ (۰۲۱)

K-308LT

AWS E308LT1-1/4
JIS YF308LC
KS YF308LC

FOR STAINLESS STEEL

Typical applications

K-308LT is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steels. (AISI 304, 304L, 304LN, ASTM A157 Gr. C9; A320 Gr. B8C or D)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② Excellent weldability and increased creep resistance at elevated temperature
③ The weld metal contains optimum ferrite contents in their austenitic structures Therefore their weldability is excellent with lower crack susceptibility.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.03	0.62	1.56	19.5	10.5
Ar+20%CO_2	0.03	0.79	1.90	19.8	10.2

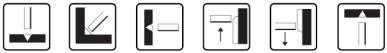
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	570 {58}	38
Ar+20%CO_2	610 {62}	35

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extension (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, BV, CWB, KR, NK, TÜV, JIS
(80%Ar+20%CO_2:CWB, TÜV)

K-308T

FOR STAINLESS STEEL

AWS E308T0-1/4
JIS YF308C
KS YF308C

Typical applications

K-308T is formulated for MAG welding of 18%Cr-8%Ni stainless steels. It is designed for operation primarily in the flat position and for weldling horizontal fillet welds

Characteristics on Usage

① K-308T is a titania type of flux cored wire for AISI 304 type
② Wire has low spatter, easy slag removal and good weld soundness.
③ The weld metal contains optimum ferrite contents in their austenitic structures. Therefore their weldability is excellent with lower crack susceptibility.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.05	0.60	1.55	19.5	10.5
Ar+20%CO_2	0.04	0.75	1.87	19.7	10.3

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	580 {59}	38
Ar+20%CO_2	610 {62}	36

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extension (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, BV, DNV, KR, NK, JIS

www.PetroJoosh.com

K-309T

AWS E309T0-1/4
JIS YF309C
KS YF309C

FOR STAINLESS STEEL

Typical applications

K-309T is formulated for MAG welding of 22%Cr-12%Ni stainless steels. Typical applications is for welding of dissimilar steels, such as 304 to mild steel or low alloy steels.

Characteristics on Usage

① K-309T is a titania type of flux cored wire for cladding and dissimilar joint welds.
② It is designed for operation in the flat position and for welding horizontal fillet welds.
③ Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.05	0.58	1.45	23.5	13.0
Ar+20%CO_2	0.04	0.78	1.93	23.7	13.4

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
CO_2	590 {60}	36
Ar+20%CO_2	610 {62}	35

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, BV, DNV, KR, LR, NK, JIS

K-309LT

FOR STAINLESS STEEL

AWS E309LT1-1/4
JIS YF309LC
KS YF309LC

Typical applications

K-309LT is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels. Dissimilar joint welds ; of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritic Cr- and austenitic Cr-Ni-steels, manganese steels. Cladding ; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
③ It is easy to use and operate with a powerful penetrating spray arc transfer, minimum spatter formation and self releasing slag.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.03	0.60	1.40	23.6	13.1
Ar+20%CO_2	0.03	0.80	1.92	23.8	13.3

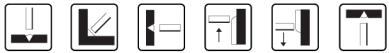
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
CO_2	550 {56}	40
Ar+20%CO_2	600 {61}	38

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, BV, CWB, DNV, KR, LR, NK, RINA, TÜV, JIS
(80%Ar+20%CO_2:CWB, TÜV)

www.PetroJoosh.com

K-309MoLT

AWS E309LMoT1-1
JIS YF309MoLC
KS YF309MoLC

FOR STAINLESS STEEL

Typical applications

K-309MoLT is designed for MAG welding of low carbon 22%Cr-12%Ni-Mo stainless steels. Dissimilar joint welds ; of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritic Cr- and austenitic Cr-Ni-steels, manganese steels. Cladding ; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
③ It has higher tensile strength when compared to conventional K-309LT wire.
④ For Mo-alloyed claddings the product is necessary for the 1st layer.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.54	1.30	23.7	13.0	2.7

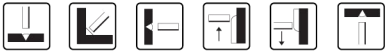
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	670 {68}	32

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions



Approved by
KR, JIS

K-309LMT

FOR STAINLESS STEEL

AWS EC309L
JIS YF309LG
KS YF309LG

Typical applications

K-309LMT is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels.It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange. (AISI 409, 436, cladding and dissimilar joint welds)

Characteristics on Usage

① Slag quantity is almost the same as a solid wire and deposition rate is up to 20% higher than a solid wire's one.
② K-309LMT provides low spatter, excellent bead appearance and porosity resistance.
③ Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
④ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
Ar+2%O_2	0.03	0.48	1.57	23.9	12.4

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
Ar+2%O_2	560 {57}	40

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.0	140~220	10~20
1.2	180~260	15~25

Welding positions



Approved by

www.PetroJoosh.com

K-316T

AWS E316T0-1/4
JIS YF316C
KS YF316C

FOR STAINLESS STEEL

Typical applications

K-316T is formulated for MAG welding of 18%Cr-12%Ni-2%Mo stainless steels where increased resistance to pitting corrosion is required (AISI 316, 316L)

Characteristics on Usage

① K-316T is a titania type of flux cored wire for flat and horizontal position welding.
② Wire has low spatter, easy slag removal and good weld soundness.
③ The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.05	0.60	1.47	18.4	12.0	2.5
Ar+20%CO_2	0.04	0.76	1.82	18.6	11.5	2.5

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
CO_2	580 {59}	38
Ar+20%CO_2	610 {62}	37

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, KR, JIS

FLUX CORED ARC WELDING WIRES

FOR STAINLESS STEEL

K-312T

AWS E312T1-1

Typical applications

K-312T is formulated for MAG welding of 30%Cr-9%Ni stainless steels. It is used for joining dissimilar steels, steels with reduced weldability and buffer layers prior to hardfacing (rolls, forging dies, hotwork tools, dies for plastics and so on)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It has resistance to stress corrosion and highly insensitive to dilution and good scaling resistance up to 1150℃.
③ It also provides excellent usability with stable arc, less spatter levels, better bead appearance as the same as that of a solid MIG wire.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.04	0.83	1.00	30.2	9.5

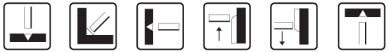
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
CO_2	760 {77}	25

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	100~220A	160~260A
	H	100~240A	160~380A
	V	140~200A	180~240A

Welding positions



Approved by

JIS

FOR STAINLESS STEEL

AWS E316LT1-1/4
JIS YF316LC
KS YF316LC

K-316LT

Typical applications

K-316LT is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steels. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal (AISI 316L, 316Ti, 316Cb)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② K-316LT has self-detaching slag, spray-like arc transfer, excellent weldability and increased creep resistance at elevated temperature
③ The weld metal contains optimum ferrite contents in their austenitic structures,Therefore their weldability is excellent with lower crack susceptibility.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.65	1.20	18.3	12.2	2.8
Ar+20%CO_2	0.03	0.75	1.85	18.7	11.4	2.5

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	550 {56}	40
Ar+20%CO_2	620 {63}	38

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, BV, DNV, KR, NK, RINA, TÜV, JIS
(80%Ar+20%CO_2:CWB, TÜV)

FOR STAINLESS STEEL

AWS E317LT1-1
JIS YF317LC
KS YF317LC

K-317LT

Typical applications

K-317LT is designed for MAG welding of low carbon 19%Cr-13%Ni-3%Mo stainless steels. The principal area of application is process and chemical plant, shipbuilding as well as nuclear plant industries.
(AISI 316L, 316LN, 317L, 317LN, UNS S31726)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② K-317LT has self-detaching slag, spray-like arc transfer, excellent weldability and increased creep resistance at elevated temperature
③ It contains higher levels of Mo for increased corrosion-resistance when compared to the K-316LT.
④ The weld metal contains optimum ferrite contents in their austenitic structures,Therefore their weldability is excellent with lower crack susceptibility.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.65	1.25	18.8	13.7	3.5

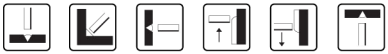
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	610 {62}	33

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	160~260	15~25

Welding positions



Approved by

ABS, JIS

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K-329T AWS E2209T1-1/-4

FOR STAINLESS STEEL

Typical applications

K-329T is formulated for MAG welding of 23%Cr-9%Ni-3%Mo duplex stainless steels.The principal area of application is chemical plant and shipbuilding as well as nuclear plant industries.
(ASTM A185 Gr.51, UNS S31803, DIN 1.4462, JIS 329J1)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It has a smooth stable arc producing a weld with easy slag removal and minimal spatter.
③ K-329T is excellent in pitting corrosion resistance and stress corrosion cracking resistance.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo	N
CO_2	0.03	0.49	1.67	23.1	9.6	2.8	0.11
Ar+20%CO_2	0.03	0.62	1.83	23.3	9.5	2.8	0.11

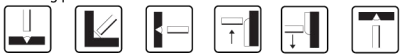
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	816 {83}	27
Ar+20%CO_2	823 {84}	27

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	100~240	160~260
	H		
	V	120~200	160~220

Welding positions



Approved by

ABS, JIS

K-347T AWS E347T1-1 JIS YF347C KS YF347C

FOR STAINLESS STEEL

Typical applications

K-347T is formulated for MAG welding of 18%Cr-8%Ni-Nb stainless steels.
(AISI 347, 321, ASTM A296; A157 Gr. C9; A320 Gr. B8C or D)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② Wire has low spatter, easy slag removal and good weld soundness.
③ Nb component improves the resistance to intergranular corrosion of the weld metal.
④ The weld metal contains optimum ferrite contents in their austenitic structures,Therefore their weldability is excellent with lower crack susceptibility.
⑤ The shielding gas should be used 100%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Nb
CO_2	0.05	0.63	1.75	19.5	10.5	0.54

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	680 {69}	34

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	160~260	15~25

Welding positions



Approved by

JIS

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K-410T

AWS E410T0-1/-4
JIS YF 410C
KS YF 410C

FOR STAINLESS STEEL

Typical applications

K-410T is designed for MAG welding of martensite stainless alloys of the 13%Cr types. It is used for surfacing of sealing faces of valves for gas,water, and steam piping system at service temperatures up to 450°

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② K-410T is suitable for the first layer of corrosion resistant weld claddings.
③ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
④ For joint welding preheating to 200~300℃ is recommended and tempering at 700~750℃ to increase toughness.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr
CO_2	0.07	0.20	0.47	13.0
Ar+20%CO_2	0.07	0.32	0.69	13.2

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)	PWHT
CO_2	530 {54}	24	750℃X 1hr.
Ar+20%CO_2	570 {58}	22	

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	180~270	15~25

Welding positions



Approved by

JIS

K-409TiT

AWS EC409

FOR STAINLESS STEEL

Typical applications

K-409TiT is developed to meet the needs of the auto-motive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode.

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
② It would produce a moderately soft arc and low spatter generation.
③ Slag quantity is almost the same as a solid wire and deposition rate is up to 20% higher than solid wire's one.
④ K-409TiT provides excellent bead appearance and porosity resistance.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ti
Ar+2%O_2	0.05	0.50	0.45	12.1	0.7

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
Ar+2%O_2	560 {57}	20

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin(mm)
1.0	140~240	10~20
1.2	180~260	15~20

Welding positions



Approved by

ABS

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K-430T AWS EC430

FOR STAINLESS STEEL

Typical applications

K-430T is designed for MAG welding of ferrite stainless alloys of the 17%Cr-Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc. (AISI 430, dissimilar steels) (AISI 409, 430Ti, 431, ASTM A176l)

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
② It would produce a moderately soft arc and low spatter generation.
③ K-430T provide higher corrosion resistance, heat resistance due to high alloy designs.
④ It is also suitable for surfacing of sealing faces of gas, water and steam valves.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ti
Ar+2%O_2	0.02	0.61	0.49	16.2	1.00

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	PWHT
Ar+2%O_2	475 {48}	535 {54}	25	-

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.4
Amp.	F	120~240A	140~260A
	H	120~240A	140~280A

Welding positions




Approved by

JIS

K-410NiMoT AWS E410NiMoT0-4

FOR STAINLESS STEEL

Typical applications

K-410NiMoT is designed for MAG welding of soft-martensite stainless alloys of the 13%Cr-4%Ni-Mo types. (AISI 403, 405, 410, 420, JIS SCS3, SCS6, ASTM CA15M, CA6NM)

Characteristics on Usage

① Wire is a metal type of flux cored wire for flat and horizontal position welding.
② K-410NiMoT features very good ductility, CVN toughness and crack resistance.
③ The machinability of the weld metal depends largely upon the kind of base metal and degree of dilution.
④ The shielding gas should be used 80%Ar+20%CO_2 for welding.
⑤ Preheating and interpass temperatures in case of thick-walled sections 100~160℃ and maximum heat input 15kJ/cm and Tempering at 580~620℃.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
Ar+20%CO_2	0.04	0.23	0.36	12.2	4.1	0.7

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)	PWHT
Ar+20%CO_2	870 {89}	25	600℃X1hr.

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~240	10~20
1.6	180~280	15~20

Welding positions




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K-439T

FOR STAINLESS STEEL

Typical applications

K-439T is designed for MAG welding of stainless steels of the 18%Cr-1%Ti types.It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc.(AISI 430, 430Ti, 431)

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
② It would produce a moderately soft arc and low spatter generation.
③ Slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
④ K-439T has the high tensile strength at the high temperature atmosphere.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ti
Ar+2%O_2	0.03	0.33	0.64	17.8	0.3

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
Ar+2%O^2	482 {49}	501 {51}	22

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.0	1.2
Amp.	Amp.	100~240	160~260
	Volt.	20~28	23~30
	Electrode extension(mm)	10~20	15~25

Welding positions




Approved by

K-436T

FOR STAINLESS STEEL

Typical applications

K-436T is designed for MAG welding of stainless steels of the 17%Cr-1% Mo-Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc. (AISI 430, 430Ti, 431, 436)

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
② It would produce a moderately soft arc and low spatter generation.
③ The Mo component in weld metal improves good crack resistance and heat resistance.
④ It is also suitable for surfacing of sealing faces of gas, water and steam valves.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Mo	Ti
Ar+2%O_2	0.03	0.35	0.63	17.5	1.1	0.5

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
Ar+2%O_2	365 {37}	477 {49}	23

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.6
Amp.	F	120~240	160~260
	H	120~240	140~280

Welding positions




Approved by

ABS, BV, DNV, GL, KR, LR, NK

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K-309LF

AWS E309LT0 -1/4
JIS YF309LC
KS YF309LC

FOR STAINLESS STEEL

Typical applications

K-309LF is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steel. Dissimilar joint welds ; of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritic Cr-and austenitic Cr-Ni-steels, manganese steels. Cladding ; for the first layer of corrosion resistant weld claddings on ferritic-perlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N.

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and horizontal position welding.
② It provides better weldability together with excellent corrosion resistance.
③ Wire has low spatter, easy slag removal and good weld soundness.
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.03	0.65	1.55	24.0	13.2
Ar+20%CO_2	0.03	0.72	1.60	24.2	13.3

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	630 {64}	40
Ar+20%CO_2	630 {65}	38

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~220	10~20
1.6	160~260	15~20

Welding positions




Approved by

JIS

K-316LF

AWS E316LT0-1/4
JIS YF316LC
KS YF316LC

FOR STAINLESS STEEL

Typical applications

K-316LF is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steel. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal.

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and horizontal position welding.
② K-316LF has self-detaching slag and spray-like arc transfer.
③ Excellent weldability and increased creep resistance at elevated temperature
④ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.65	1.58	19.4	12.4	2.42
Ar+20%CO_2	0.03	0.70	1.62	19.2	12.8	2.50

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm² {kgf/mm²}	El (%)
CO_2	600 {61}	39
Ar+20%CO_2	620 {63}	38

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin (mm)
1.2	100~220	10~20
1.6	160~260	15~25

Welding positions




Approved by

JIS

www.PetroJoosh.com

K-308HT

AWS A5.22 E308HT1-1/-4

For stainless steel (18%Cr-8%Ni)

Typical applications

K-308HT is designed for MAG welding of high carbon 18%Cr-8%Ni stainless steels and it is recommended to be use for high temperature service(about 600℃) (STS 304H, 307H)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It has excellent feedability and increased creep resistance at elevated temperature.
③ The weld metal contains optimum ferrite contents in their austenitic micro structures and their weldability is excellent with lower crack susceptibility.
④ The shielding gas should be used 100%CO_2 or 80%Ar+20%CO_2 mixture for welding.
⑤ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.06	0.75	1.00	20.3	10.5
Ar+20%CO_2	0.06	0.80	1.10	20.5	10.5

Typical mechanical properties of all-weld-metal

Shielding Gas	T · P N/mm²{kgf/mm²}	El (%)
CO_2	600 {61}	40
Ar+20%CO_2	610 {62}	40

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)	Amp	Electrode extension (mm)
1.2	120~240	10~20
1.6	160~280	15~25

Welding positions



Approved by

FOR STAINLESS STEEL

AWS EC409

K-409TiC

Typical applications

K-409TiC is developed to meet the needs of the auto-motive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode.

Characteristics on Usage

① It would produce a moderately soft arc and high welding speed
② K-409TiC provides low spatter, excellent bead appearance and porosity resistance.
③ Higher Ti component improves resisitance to porosity, good wetting behaviour when compared to the K-409TiT wire
④ High deposition efficiency and high speed welding on the thin plate are possible.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ti
Ar+2%O_2	0.03	0.55	0.60	11.4	1.0

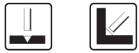
Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
Ar+2%O_2	550 {56}	20

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extensin(mm)
1.0	140~220	10~20
1.2	160~240	15~20

Welding positions



Approved by

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For stainless steel
(Low C, 18%Cr-8%Ni,-196℃)

AWS A5.22 E308LT1-1
JIS Z 3323 YF308LC
KS D 3612 YF308LC

K-308LS

Typical applications

K-308LS is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steels and It is recommended to be use for low temperature service(-196℃) (STS 304, 304L, 304LN, ASTM A157 Gr C9; A320 Gr. B8C or D)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It is formulated to focus on mechanical properties more than welding arc stability.
③ The weld metal contains low ferrite contents in their austenitic micro structures and provides good corrosion resistance, heat resistance properties.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.03	0.42	2.20	18.5	10.2

Typical mechanical properties of all-weld-metal

Shielding Gas	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf.m} (-105℃)	(-196℃)
CO_2	540 {55}	45	50 {5.1}	35 {3.6}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)	Amp	Electrode extension (mm)
1.2	120~240	10~20

Welding positions



Approved by

For stainless steel
(Low C, 18%Cr-12%Ni-Mo, -196℃)

AWS A5.22 E316LT1-1
JIS Z 3323 YF316LC
KS D 3612 YF316LC

K-316LS

Typical applications

K-316LS is designed for MAG welding of low carbon 18%Cr-8%Ni-2%Mo stainless steels and It is recommended to be use for low temperature service(-196℃)
(AISI 316L, 316Ti, 316Cb)

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It is formulated to focus on mechanical properties more than welding arc stability.
③ The weld metal contains low ferrite contents in their austenitic micro structures and provides good corrosion resistance, heat resistance properties.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.40	2.00	17.6	12.0	2.3

Typical mechanical properties of all-weld-metal

Shielding Gas	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf.m} (-105℃)	(-196℃)
CO_2	560 {57}	38	56 {5.7}	38 {3.9}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)	Amp	Electrode extension (mm)
1.2	120~240	10~20

Welding positions



Approved by
JIS

www.PetroJoosh.com

K-329TE

For Lean Duplex stainless steel (High Mn)

Typical applications

K-329TE is formulated for MAG welding of 22%Cr-9%Ni-3%MnMo Lean duplex stainless steels. 'Lean duplex' steel has excellent strength and medium corrosion resistance. The steel is mainly intended for application such as civil engineering, storage tanks, containers etc.

Characteristics on Usage

① Wire is a titania type of flux cored wire for all-position welding.
② It provides a ferritic-austenitic weldment that combines many of the good properties of both ferritic and austenitic stainless steels.
③ It gives high tensile strength and also good resistance to stress corrosion cracking.
④ K-329TE has a smooth stable arc with easy slag removal and minimal spatter.
⑤ The shielding gas should be used 100%CO2 for welding.
⑥ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo	N
CO_2	0.03	0.48	0.84	22.6	9.7	1.68	0.14

Typical mechanical properties of all-weld-metal

Shielding Gas	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf.m} (-40℃)
CO_2	780 {79.6}	32	50 {5.1}

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)	Amp	Electrode extension (mm)
1.2	140~240	10~20

Welding positions



Approved by

K-325T

For Duplex stainless steel (UNS S32750)

AWS A5.22 E2553T0-1

Typical applications

K-325T is formulated for MAG welding of 25%Cr-9%Ni-3%MoCu duplex stainless steels. The typical application is chemical plant and shipbuilding as well as nuclear plant industries.
(UNS S32520, UNS S32550, S32750, S32900, JIS 329J4L)

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and horizontal position welding.
② It has better pitting corrosion resistance and stress corrosion cracking resistance compared to the K-329T.
③ K-325T provides low spatter and fume generation and high efficiency in flat position as well as horizontal.
④ The shielding gas should be used 100%CO_2 for welding.
⑤ The wire should be kept in an area of low humidty after usage to protect to absorbed moisture in rainly season or a dewfall environment.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni	Mo	Cu	N
CO_2	0.03	0.60	1.00	25.8	9.5	3.70	1.75	0.13

PREN : 40.4

Typical mechanical properties of all-weld-metal

Shielding Gas	T·P N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf.m} (-40℃)
CO_2	850 {86}	18	27J

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)	Amp	Electrode extension (mm)
1.2	120~240	10~20
	160~260	15~25

Welding positions



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www.PetroJoosh.com

FOR STAINLESS STEEL

AWS E308LT0-1/4
JIS YF308LC
KS YF308LC

K-308LF

Typical applications

K-308LF is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steel and used to join 301, 302, 304 and 308 stainless steel. It is designed for operation primarily in the flat position and for welding horizontal fillet welds

Characteristics on Usage

① Wire is a titania type of flux cored wire for flat and horizontal position welding.
② It has self-detaching slag and spray-like arc transfer.
③ It provides low spatter and fume, high efficient weld in flat position as well as horizontal.
④ The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.
⑤ The shielding gas should be used 100%CO_2 and 80%Ar+20%CO_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Ni
CO_2	0.03	0.52	1.70	20.3	10.4
Ar+20%CO_2	0.03	0.70	1.80	20.5	10.5

Typical mechanical properties of all-weld-metal

Shielding Gas	T · S N/mm²{kgf/mm²}	El (%)
CO_2	620 {63}	38
Ar+20%CO_2	630 {64}	36

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)	Amp.	Electrode extension (mm)
1.2	100~220	10~20
1.6	160~260	15~20

Welding positions



Approved by

JIS

FOR STAINLESS STEEL

K-436T

Typical applications

K-436T is designed for MAG welding of stainless steels of the 17%Cr-1% Mo-Ti types. It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc. (AISI 430, 430Ti, 431, 436)

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
② It would produce a moderately soft arc and low spatter generation.
③ The Mo component in weld metal improves good crack resistance and heat resistance.
④ It is also suitable for surfacing of sealing faces of gas, water and steam valves.
⑤ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Mo	Ti
Ar+2%O_2	0.03	0.35	0.63	17.5	1.1	0.5

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
Ar+2%O_2	365 {37}	477 {49}	23

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		1.2	1.6
Amp.	F	120~240	160~260
	H	120~240	140~280

Welding positions



Approved by

ABS, BV, DNV, GL, KR, LR, NK

www.PetroJoosh.com

For stainless steel
(18%Cr-Nb,Muffler welding)

K-430LNb

Typical applications

K-430LNb is designed for MAG welding of stainless steels of the 18%CrNb steels and It is suitable for automotive exhaust fabrications such as front pipe, bellows, flange etc.
(STS 405, 410L, 429, 430)

Characteristics on Usage

① Wire is a metal type of flux cored wire for high speed welding on the thin plate.
② It would produce a moderately soft arc and low spatter generation. K-430LNb achieves good weld metal improved excellent creep rupture strength and good crack resistance at high temperature.
④ The shielding gas should be used 98%Ar+2%O_2 for welding.
⑤ Preheat around 150~250℃ and postheat at 690℃ when it welds with multiple pass.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	Cr	Cu	Nb
2%O_2	0.03	0.26	0.27	17.8	0.25	0.56

Typical mechanical properties of all-weld-metal

Shielding Gas	T·P N/mm²{kgf/mm²}	El (%)
2%O_2	530 {54.1}	20

Package

Dia. (mm)	1.2	
Flat & Horizontal	Amp.	Volt
	140~240	18~24

Welding positions



Approved by

www.PetroJoosh.com

جدول خلاصه محصولات Self Shielded FCW برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
K-NGS10	E71T-10	YFW-S50GB	YFW-S50GB	Lap and fillet welding for single pass applications.
K-NGS11	E71T-11	YFW-S50GB	YFW-S50GB	Butt and fillet welding for single and multi-pass applications.
K-NGS	E71T-GS	YFW-S50GB	YFW-S50GB	Lap and fillet welding on thin gauge galvanized and carbon steel in all welding positions.
K-NGS4	E70T-4	YFW-S50GB	YFW-S50GB	The welding of heavy machinery, large construction components & stiffeners in large building.

K-NGS11

AWS E71T-11
JIS YFW-S50GB
KS YFW-S50GB

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-NGS11 is a self-shielded flux cored wire for lap and fillet welds of mild and medium tensile steels not exceeding 510MPa. It is suitable for a variety of app-lications such as prefab, building fabication, tanks, ornamental iron, farm implement, repairs and general fabrication.

Characteristics on Usage

① Wire is for all-positional welding of single- and mutiple pass fabrications.
② The arc characteristics are so smooth and stable, even the most novice welder can produce good welds.
③ It is designed for on site general fabrication and structural work requiring no impact properties.
④ It can be used DCEN polarity.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Al
–	0.10	0.10	0.55	0.016	0.006	1.2

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
–	500 {51}	530 {54}	23

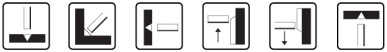
Sizes available and recommended currents (DC wire⊖)

Dia.	(mm)	1.2	1.6	2.0
Amp.	F	80~200	160~270	180~280

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

CWB, JIS (80% Ar+20%Co2:CWB)

K-NGS10

AWS E71T-10
JIS YFW-S50GB
KS YFW-S50GB

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

K-NGS10 is a self-shielded flux cored wire for lap and fillet welds of mild and medium tensile steels not exceeding 510MPa. It is suitable for a variety of applications such as prefab, building fabication, tanks, ornamental iron, farm implement, repairs and general fabrication.

Characteristics on Usage

① Wire is for all-positional welding of single-pass fabrications.
② It has good arc stability, low spatter generation, high efficiency, good bead appearance and slag removal.
③ It is designed for on site general fabrication and structural work requiring no impact properties.
④ It can be used DCEN polarity.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Al
–	0.10	0.11	0.53	0.016	0.006	1.1

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
–	480 {49}	530 {54}	22

Sizes available and recommended currents (DC wire⊖)

Dia.	(mm)	1.6	2.4	3.2
Amp.	F	80~200	160~270	180~280
	H-Fil	80~160	120~220	–

Package

Dia.	(mm)	1.6	2.4	3.2
Spool	(kg)	5, 12.5, 15, 20		
Pailpack	(kg)	100~300		

Welding positions



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K-NGS4

AWS E70T-4
JIS YFW-S50GB
KS YFW-S50GB

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

The welding of heavy machinery, large construction components where appropriate,and stiffeners in large building. This wire is intended for semi-automatic and automatic,single- and multiple-pass welding in the flat and horizontal positions.

Characteristics on Usage

① Extremely high deposition rates can be achieved.
② K-NGS4 is self-shielded flux cored wire to facilitate welding outdoors.
③ It has good arc stability, low spatter generation, high efficiency, good bead appearance and slag removal.
④ It is designed for on site general fabrication and structural work requiring no impact properties.
⑤ It can be used DCEP (reverse polarity).
⑥ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Al
–	0.17	0.22	0.80	0.012	0.007	1.32

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)
–	460 {47}	540 {55}	23

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.6	2.4	3.2
Amp.	F	200~360	240~400	300~500
	H-Fil	200~380	240~420	300~500

Package

Dia.	(mm)	1.6	2.4	3.2
Spool	(kg)	12.5, 15, 20		
Coil	(kg)	20, 25, 30		

Welding positions



Approved by

K-NGS

FOR HIGH TENSILE STRENGTH STEEL

AWS E71T-GS
JIS YFW-S50GB
KS YFW-S50GB

Typical applications

K-NGS is a self-shielded flux cored wire for lap and fillet welds of mild and medium tensile steels not exceeding 510MPa. It is suitable for a variety of app-ications such as prefab, building fabication, tanks, ornamental iron, farm implement, repairs and general fabrication.

Characteristics on Usage

① Wire is for all-positional welding of single pass automatic and semi-automatic fabrications.
② It can be applicable for aluminized steel and galvanized steel from 1.2 to 5.0㎜.
③ It is designed for on site general fabrication and structural work requiring no impact properties.
④ It can be used DCEN polarity.
⑤ Refer to page 150 for more information on usage.

Typical chemical composition of all-weld-metal (%)

Shielding Gas	C	Si	Mn	P	S	Al
–	0.16	0.31	0.82	0.014	0.006	1.3

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	Longitudinal Guided Bend Test
–	520 {53}	No Defects

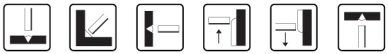
Sizes available and recommended currents (DC wire⊕,⊖)

Dia.	(mm)	1.2	1.6	2.0
Amp.	F	80~200	160~270	180~280
	H-Fil			

Package

Dia.	(mm)	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 15, 20		

Welding positions



Approved by

CWB

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جدول خلاصه محصولات برای Heat-Resisting Steel

Product	Standard			Application
	AWS	JIS	KS	
KC-80SB2	ER80S-B2	YG1CM-G	-	1.25%Cr-0.5%Mo Heat Resistant steels.
KC-90SB3	ER90S-B3	YG2CM-G	-	2.25%Cr-1%Mo Heat Resistant steels.
KC-80D2	ER80S-D2	YGM-C	YGM-C	Butt and fillt welding of construction equipment, boiler, low alloy steels and 0.5%Mo alloy steel.

KC-80SB2

AWS ER80S-B2
JIS YG1CM-G
EN SG CrMo1

FOR HEAT-RISISTING STEEL

Typical applications

1.25%Cr-0.5 Mo Heat Resistant steels

Characteristics on Usage

① Wide mixing range can be used, but generally 98%Ar+2%O_2 is recommended for KC-80SB2
② Excellent mechanical and toughness properties after PWHT
③ It is suitable to use shielding gas of 20 to 25ℓ /min.
④ Distance between a base plate and contact tip must be kept at around 6~15mm with current less than 250A, and around 15 ~ 25mm with current over than 250A.
⑤ Wind screen must be set at the welding in the place with strong wind
⑥ Preheat at 100℃ to 200℃ and post weld heat treatment at 620℃ to 720℃ is necessary according to the plate thickness, type of steels, shape of base metals or under high restriction.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Mo
0.09	0.54	0.51	1.26	0.45

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (0℃)
Ar+2%O_2	500 {51}	580 {59}	25	80 {8}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

KC-90SB3

AWS ER90S-B3
JIS YG2CM-G
EN SG CrMo2

FOR HEAT-RISISTING STEEL

Typical applications

2.25%Cr-1% Mo Heat Resistant steels

Characteristics on Usage

① Wide mixing range can be used, but generally 98%Ar+2%O_2 is recommended for KC-90SB3
② Excellent mechanical and toughness properties after PWHT
③ It is suitable to use shielding gas of 20 to 25ℓ /min.
④ Distance between a base plate and contact tip must be kept at around 6~15mm with current less than 250A, and around 15 ~ 25mm with current over than 250A.
⑤ Wind screen must be set at the welding in the place with strong wind
⑥ Preheat at 100℃ to 200℃ and post weld heat treatment at 620℃ to 720℃ is necessary according to the plate thickness, type of steels, shape of base metals or under high restriction.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Mo
0.09	0.47	0.66	2.31	1.00

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-18℃)
Ar+2%O_2	570 {58}	660 {67}	24	80 {8}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

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FOR HEAT-RISISTING STEEL

AWS ER80S-D2
JIS YGM-C
KS YGM-C

KC-80D2

Typical applications

Butt and fillet welding of construction equipment, boiler, low alloy steels, and 0.5%Mo alloy steel.

Characteristics on Usage

① This wire is used for welding steels employed at elevated temperatures up to 500℃.
② Where jont thickness is critical, it is important to apply the correct preheating and interpass temperatures.

Typical chemical composition of wire (%)

C	Si	Mn	Mo
0.08	0.58	1.85	0.46

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J{kgf · m} (-29℃)
Ar+2%O_2	610 {62}	690 {70}	23	60 {6}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~180	80~250	120~350	140~400	220~450
	V&OH	50~120	60~150	70~200	100~250	120~250

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

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جدول خلاصه محصولات برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
KC-25	ER70S-3	YGW14	YGW14	Butt and fillet welding of transportation vehicles, cars, bridges and industrial machinery.
KC-25M	ER70S-3	YGW16	YGW16	Butt and fillet welding of structures such as chemical equipment and pressure vessels.
KC-26	ER70S-G	YGW11	YGW11	Butt and fillet welding of vehicles, electric products, ships, machinery and bridges.
KC-27	ER70S-G	YGW15	YGW15	Butt and fillet welding of vehicles, steel frames, bridges, machinery adn shipbuilding.
KC-28	ER70S-6	YGW12	YGW12	Butt and fillet welding of vehicles, building, ships, machinery and bridges in all positions.
KC-70S2	ER70S-2	-	-	Butt and fillet welding of vehicles, cars, ships, machineries and bridges.
ZO-55	ER70S-G	YGW18	YGW18	Butt and fillt welding of mild steel & 540N/mm2 class high tensile strength steel. Construction Equipment, Bridges and Building.
ZO-26	ER70S-G	YGW11	YGW11	-
ZO-28	ER70S-6	YGW12	YGW-12	-
ZO-27	ER70S-G	YGW15	YGW15	-
ZO-90	ER90S-G	-	-	Butt And H-fillet welding of 620M/mm2 class high tensile strength steel and medium alloy solid wire.
ZH-90	ER90S-G	-	-	Butt And H-fillet welding of 620M/mm2 class high tensile strength steel and medium alloy solid wire.
ZH-100	ER100S-1/-G	-	-	Butt And H-fillet welding of 690M/mm2 class high tensile strength steel and medium alloy solid wire.
ZO-60	ER80S-G	YGW21	YGW21	Construction machineries, bridges and storage tank. Butt and H-fillet welding of 590N/mm2 class high tensile strength steel.

KC-25M

AWS ER70S-3
JIS YGW16
KS YGW16

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of structures such as chemical equipment and pressure vessels.

Characteristics on Usage

① Good usability can be obtained by wide range welding from low to high currents.
② Stable arc and low spatter.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.67	1.20	0.015	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
Ar+20%CO_2	440 {45}	540 {55}	30	100 {10}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300		–
Pailpack	(B)	–			350,400,450		

Approved by

FOR HIGH TENSILE STRENGTH STEEL

AWS ER70S-3
JIS YGW14
KS YGW14

KC-25

Typical applications

Butt and fillet welding of transportation vehicles, cars, bridges and industrial machinery.

Characteristics on Usage

① Suitable for high speed welding of steel sheet by short circuiting transfer in all position.
② Stable arc and low spatter loss.
③ Applicable to mixture gas(Ar+20% CO_2)

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.67	1.20	0.015	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
CO_2	430 {44}	520 {53}	33	90 {9}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~120	50~140	80~250	100~350	140~400	200~450
	V&OH	50~100	50~120	60~150	70~200	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300, 350		–
Pailpack	(B)	–			350, 400, 450		

Approved by

ABS, CWB, DNV, KR, LR, NK, JIS, KS

KC-27

AWS ER70S-G
JIS YGW15
KS YGW15

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of vehicles, steel frames, bridges, machinery and shipbuilding

Characteristics on Usage

① Applicable to Ar+15~25% CO_2 mixture gas.
② Stable arc , low spatter and less slag formation.
③ The deposited weld metal has an excellent notch toughness.
④ Beautiful bead appearance is obtained by spray transfer.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.62	1.18	0.014	0.010

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
Ar+20%CO_2	490 {50}	560 {57}	31	160 {16}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300		–
Pailpack	(B)	–			350, 400, 450		

Approved by

ABC, DNV, NK, JIS

KC-26

AWS ER70S-G
JIS YGW11
KS YGW11

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of vehicles, electric products, ships, machinery and bridges.

Characteristics on Usage

① A solid wire for high current welding in all positions.
② Stable arc and low spatter.
③ Suitable for high speed welding of thick plates.
④ Good crack resistance of the deposited weld metal.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.06	0.80	1.53	0.014	0.010

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
CO_2	490 {50}	560 {57}	29	110 {11}
Ar+20%CO_2	520 {53}	580 {59}	30	120 {12}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

ABS, BV, DNV, GL, KR, LR, NK, JIS, KS
(80%Ar + 20% CO_2 : NK, JIS, KS)

www.PetroJoosh.com

KC-70S2

AWS ER70S-2

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of vehicles, cars, ships, machineries and bridges.

Characteristics on Usage

① Arc is very stable and can be uesd for welding steels which have a rusty or dirty surface because wire has a triple deoxidizer (Al, Ti, Zr).
② It is able to obtain the good bead appearance with the use of Ar+CO_2 mixtures as shielding gas.

Typical chemical composition of wire (%)

C	Si	Mn	Ti	Al	Zr
0.07	0.54	1.18	0.07	0.08	0.05

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
CO_2	490 {50}	550 {56}	29	80 {8}
Ar+20%CO_2	550 {56}	610{62}	26	50 {5}

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 15, 20					
Pailpack (S)	200, 250			250, 300,		–
Pailpack (B)	–			350,400,450		

Approved by

KC-28

AWS ER70S-6
JIS YGW12
KS YGW12

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of vehicles, building, ships, machinery and bridges in all positions.

Characteristics on Usage

① Suitable for high speed welding of steel sheets by short circuiting transfer in all positions.
② Flow quantity of shielding gas should be 20ℓ /min in general.
③ Keep the distance between tip and base plate metal 6~15mm for 250 Amp. and under or within 15~25mm for more than 250 Amp. of welding current.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.86	1.53	0.012	0.007

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
CO_2	450 {46}	550 {56}	30	70 {7}
Ar+20%CO_2	480 {49}	580 {59}	28	80 {8}

Sizes available and recommended currents (DC wire⊕)

Dia. (mm)		0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 15, 20					
Pailpack (S)	200, 250			250, 300,		–
Pailpack (B)	–			350,400,450		

Approved by

ABS, BV, CCS, CWB, DNV, GL, LR, KR, NK, TÜV, JIS,KS,
(80%Ar + 20% CO_2 : ABS, TÜV, JIS, KS)

FOR HIGH TENSILE STRENGTH STEEL

AWS ER70S-G
JIS YGW18
KS YGW18

ZO-55

Typical applications

Butt and fillet welding of mild steel & 540N/㎟ class high tensile strength steel. Construction Equipment, Bridges and Building

Characteristics on Usage

① Excellent Mechanical Properties are obtained under High heat Input (40kj/cm) and interpass temp. (350℃) for 490N/㎟.class steel welding
② Increasing Productivity due to higher Heat Input and Interpass Temperature.
③ It is suitable to use shielding gas of 20 to 25ℓ /min.
④ Distance between a base plate and contact tip must be kept at around 6 ~15mm with current less than 250A, and around 15 ~ 25mm with current over than 250A.
⑤ Wind screen must be set at the welding in the place with strong wind

Typical chemical composition of wire (%)

C	Si	Mn	Ti
0.07	0.92	1.92	0.18

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/㎟ {kgf/㎟}	T · S N/㎟ {kgf/㎟}	El (%)	IV J {kgf · m} (0℃)	Welding Condition
CO_2	580 {59}	640 {65}	27	170 {17}	18KJ/cm,150℃
	470 {48}	560 {57}	29	120 {12}	40KJ/cm,350℃

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

ZO-26

AWS A5.18 ER70S-G
JIS Z 3312 YGW11
KS D 7025 YGW11

For 490MPa high Tensile steel

Typical applications

Butt and fillet welding of vehicles, electric products, ships, machinery and bridges.(SM490, A36 Gr. all, API 5L X42-X65)

Characteristics on Usage

① This solid wire is suitable for high current welding in all positions and for high speed welding of thick plates.
② Deposited weld metal is extremely excellent against crack resistant and the weld metal toughness is available down to -50℃.
③ ZO-26 has uninterrupted feedability due to copper coating, helix of the wire, close wire diameter tolerance etc.
④ Where joint thickness is critical, it is important to apply the correct preheating and interpass temperatures(50~150℃)

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.058	0.78	1.50	0.013	0.010

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/㎟ {kgf/㎟}	T · S N/㎟ {kgf/㎟}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
CO_2	500 {51}	580 {59}	29	120 {12}
Ar+20%CO_2	500 {54}	600 {61}	30	125 {13}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300		–
Pailpack	(B)	–			350, 400, 450		

Approved by

ABC, DNV, GL, KR, LR, NK, KS, JIS

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For 490MPa high Tensile steel

AWS A5.18 ER70S-6
JIS Z 3312 YGW12
KS D 7025 YGW12

KC-28

Typical applications

Butt and fillet welding of vehicles, building, ships, machinery and bridges in all positions.

Characteristics on Usage

① Suitable for high speed welding of steel sheets by short circuiting transfer in all positions.
② Flow quantity of shielding gas should be 20ℓ /min in general.
③ Keep the distance between tip and base plate metal 6~15mm for 250 Amp. and under or within 15~25mm for more than 250 Amp. of welding current.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.86	1.53	0.012	0.007

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm²{kgf/mm²}	T·S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf·m} (-29℃)
CO_2	450 {46}	550 {56}	30	70 {7}
Ar+20%CO_2	480 {49}	580 {59}	28	80 {8}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

ABS, BV, CCS, CWB, DNV, GL, LR, KR, NK, TÜV, JIS, KS
(80%Ar + 20% CO_2 : ABS, TÜV, JIS, KS)

ZO-27

AWS A5.18 ER70S-G
JIS Z 3312 YGW15
KS D 7025 YGW15

For 490MPa high Tensile steel

Typical applications

Butt and fillet welding of vehicles, electric products, ships, machinery and bridges.(SM490, A36 Gr. all, API 5L X42~X65)

Characteristics on Usage

① This solid wire is suitable for Ar+15~25%CO_2 mixture gas and applicable to use 490MPa class tensile strength steel welding.
② It provides soft welding arc, high deposition rate and low spatter levels due to the usage of mixture gas.
③ ZO-27 has uninterrupted feedability due to copper coating, helix of the wire, close wire diameter tolerance etc.
④ Where joint thickness is critical, it is important to apply the correct preheating and interpass temperatures(50~150℃)

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.068	0.60	1.20	0.013	0.011

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm² {kgf/mm²}	T·S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf·m} (-18℃)
Ar+20%CO_2	500 {51}	580 {59}	31	160 {16}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	0.9	1.0	1.2	1.4	1.6
Amp.	F	50~200	70~250	100~350	140~400	200~550
	V&OH	50~120	50~150	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300		–
Pailpack	(B)	–			350, 400, 450		

Approved by

ABC, DNV, LR, NK, JIS

www.PetroJoosh.com

For 620MPa high Tensile steel

AWS A5.28 ER90S-G

ZH-90

Typical applications

Butt and H-Fillet welding of 620N/mm² class high tensile strength steel and medium alloy solid wire for shielded arc welding of quenched and tempered fine grained structural steels ; (API-5L X65, X70, X80; ASTM A225 Gr.C; A572 Gr.65; EN 10208-2 L550; EN 10137-2 S620)

Characteristics on Usage

① It is recommended to Ar + 15~25%CO_2 shielding gas and suitable to use shielding gas of 20ℓ /min.
② Distance between a base plate and contact tip must be kept at around 6~15mm with current less than 250A, and around 15~25mm with current over than 250A.
③ Where joint thickness is critical, it is important to apply the correct preheating and interpass temperatures(50~150℃)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Mo	Cu	Ti
0.08	0.59	1.81	0.9	0.29	0.12	0.03

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm² {kgf/mm²}	T·S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf·m}
Ar+20%CO_2	580 {59}	690 {70}	24	110 {11} (-40℃)

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat, H-Fillet	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 15, 20					
Pailpack (S)	200, 250			250, 300		–
Pailpack (B)	–			350,400,450		

Approved by

ZO-90

AWS A5.28 ER90S-G

For 620MPa high Tensile steel

Typical applications

Butt and H-Fillet welding of 620N/mm² class high tensile strength steel and medium alloy solid wire for shielded arc welding of low alloyed and creep resistant steels in boiler, tank, pipeline and reator construction.
(API-5L X65, X70, X80; ASTM A517 Gr. A,B,C; A225 Gr. C; A572 Gr. 65; EN 10208-2 L550)

Characteristics on Usage

① It is recommended to Ar + 15~25%CO_2 shielding gas and suitable to use shielding gas of 20ℓ /min.
② Distance between a base plate and contact tip must be kept at around 6~15mm with current less than 250A and around 15~25mm with current over than 250A.
③ Where joint thickness is critical, it is important to apply the correct preheating and interpass temperatures(50~150℃)

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Mo	Cu
0.05	0.75	1.82	0.012	0.006	0.28	0.15

Typical mechanical properties of all-weld-metal

Shielding Gas	Y·P N/mm² {kgf/mm²}	T·S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf·m}
Ar+20%CO_2	580 {59}	680 {69}	28	80 {8} (-40℃)

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat, H-Fillet	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 15, 20					
Pailpack (S)	200, 250			250, 300		–
Pailpack (B)	–			350,400,450		

Approved by

www.PetroJoosh.com

ZO-60

AWS ER80S-G
JIS YGW21
KS YGW21

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Construction machineries, bridges and storage tank.
Butt and H-fillet welding of 590N/mm² class high tensile strength steel.

Characteristics on Usage

① Arc is very stable, spatter is less and weldability is excellent even in high welding current range.
② High working efficiency is obtained by automatic and semi-automatic welding due to high deposition rate and deep penetration.
③ Preheat at 50~150℃ is required when a plate is thick and crack susceptibility is high.

Typical chemical composition of wire (%)

C	Si	Mn	Mo	Ti
0.07	0.84	1.95	0.31	0.17

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-18℃)
CO_2	550 {56}	640 {65}	27	110 {11}
Ar+20%CO_2	580 {59}	660 {67}	28	140 {14}

Sizes available and recommended currents (DC wire⊕)

Dia.	(mm)	1.2	1.4	1.6
Amp.	F	120~350	150~400	200~500
	V&OH	80~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300,		–
Pailpack	(B)	–			350,400,450		

Approved by

NK, JIS

ZH-100

AWS A5.28 ER100S-1/-G

For 690MPa high Tensile steel

Typical applications

Butt and H-Fillet welding of 690N/mm² class high tensile strength steel and medium alloy solid wire for shielded arc welding of quenched and tempered fine grained structural steels:
(API-5L X70, X80, EN 10208-2 L480, L550; EN 10137-2 S550, S620, S690)

Characteristics on Usage

① It is recommended to both Ar + 2%O_2 and Ar + 20%CO_2 shielding gas and suitable to use shielding gas of 20ℓ /min.
② Distance between a base plate and contact tip must be kept at around 6~15mm with current less than 250A, and around 15~25mm with current over than 250A.
③ Where joint thickness is critical, it is important to apply the correct preheating and interpass temperatures(50~150℃)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo	Cu
0.05	0.26	1.54	1.99	0.25	0.35	0.21

Typical mechanical properties of all-weld-metal

Shielding Gas	Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m}
Ar+20%CO_2	705 {71}	762 {77}	22	85 {9} (-20℃)
Ar+2%O_2	716 {72}	775 {78}	22	130 {14} (-51℃)

Sizes available and recommended currents (DC wire ⊕)

Dia. (mm)		1.2	1.4	1.6
Amp.	Flat, H-Fillet	100~350	140~400	200~550
	V&OH	50~180	100~250	120~300

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 15, 20					
Pailpack	(S)	200, 250			250, 300		–
Pailpack	(B)	–			350,400,450		

Approved by

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جدول خلاصه محصولات برای جوشکاری MIG

Product	Standard			Application
	AWS	JIS	KS	
M-2209	ER2209	-	-	Welding of 22%Cr-95%Ni-3%Mo (UNS S31803, S32900) steels.
KIS-M307Si	DINX 15CrNiMn 18 8	-	-	Welding of dissimilar steel such as austenitic manganese steel to carbon steel forgings.
M-308	ER308	Y308	Y308	Welding of 18%Cr - 8%Ni steels such as AISI Types 301,302,304,305 and 308
M-308H	ER308H	-	Y308LSi	Welding of high carbon 18%Cr-8%Ni steels such as AISI Types 304H.
M-308L	ER308L	Y308L	Y309	Welding of low carbon 18%Cr - 8%Ni steels such as AISI Types 304L and 308L.
M-308LSi	ER308LSi	Y308LSi	Y309L	Improves the usability of the fille metal, welding of low carbon 18%Cr - 8%Ni steels.
M-309	ER309	Y309	Y309LSi	Welding of similar alloys in wrought or cast forms. Welding of dissimilar steels, such as Type 304 to carbon steel or low alloy steels.
M-309L	ER309L	Y309L	Y310	Welding of similar alloys in wrought or cast forms and the clad side of Type 304 clad steels. Joining Type 304 to carbon steel.
M-309LSi	ER309LSi	Y309LSi	Y312	Welding of similar alloys in wrought or cast forms and the clad side of Type 304 clad steels. Joining Type 304 to carbon steel
M-310	ER310	Y310	Y316	Welding of base metals of similar composition.
M-312	ER312	Y312	Y316L	Welding of cast alloys of similar composition. Welding of dissimilar metals such as carbon steel to stainless steel.
M-316	ER316	Y316	Y316LSi	Welding of 18%Cr - 12%Ni - Mo steels(AISI Type 316)
M-316L	ER316L	Y316L	Y317L	Welding of 18%Cr - 12%Ni-Mo steels where the corrosion resistant qualities are required.
M-316LSi	ER316LSi	Y316LSi	Y347	Improves the usability of the filler metal. Welding of low carbon 18%Cr-12%Ni-Mo steels.
M-317L	ER317L	Y317L	Y410	Welding of base metals of similar composition.
M-347	ER347	Y347	-	Welding of 18%Cr - 9%Ni-Nb steels(AISI Type347), 18%Cr-9%Ni-Ti steels(AISI Type321).
M-410	ER410	Y410	Y410	Welding of 13%Cr steel (AISI Type 403,410).
M-420	ER420	-	-	Surfacing in requiring corrosion resistance.
M-430	ER430	Y430	Y430	Welding of 17%Cr steel and clad side type 403,405 clad steel. Welding of dissimilar steels, such as Cr-stainless steel to carbon steel.
M-430Mo	-	-	-	Surfacing in requiring corrosion resistance.
M-430Ti	-	-	-	Welding of 17%Cr steel and clad side type 403,405 clad steel.
M-309LMo	ER309LMo	-	-	Suitable for dissimilar metal joint and underlying on ferritic steels for overlaying stainless steel weld metals.
M-430LNb	-	-	-	Welding of ferrite stainless alloys of the 17%Cr-Nb types (STS 429, 444)
M-409Cb	ER347	Y347	-	Welding of stainless alloys of the 18%Cr-9%Ni-Nb(Ti) types (STS 321, 347)

M-308H

AWS A5.9 ER308H

For stainless steel (18%Cr-8%Ni)

Typical applications

Welding of high carbon 18%Cr-8%Ni stainless steels (AISI 304H)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.05	0.42	2.06	9.70	19.90

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	590{60}	44	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

M-308LSi

AWS A5.9 ER308LSi
JIS Z 3321 Y308LSi

For stainless steel (Low C, 18%Cr-8%Ni)

Typical applications

Welding of low carbon 18%Cr-8%Ni stainless steels (AISI 304L, 308L)
The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.75	1.95	10.40	19.70

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	590{60}	42	0℃:110 -196℃:60

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200,250, 300		

Approved by CWB, TÜV

M-309

For stainless steel (Dissimilar Joint welding)

AWS A5.9 ER309
JIS Z 3321 Y309

Typical applications

Welding of similar alloys in wrought or cast forms. Welding of cissimilar steels, such as 304L to mild steel or low alloy steels.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.05	0.36	1.84	13.30	23.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	610 {62}	40	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by BV

M-309L

For stainless steel (Dissinilar joint welding)

AWS A5.9 ER309L
JIS Z 3321 Y309L

Typical applications

Welding of similar alloys in wrought or cast forms and clad side of type 304L clad steels.The low ferrite content improves the crack-resistance and corrosion-resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.40	1.92	13.80	23.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	570 {58}	42	0℃: 100

Package

Da. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

M-2209

AWS A5.9 ER2209

For Duplex stainless steel (22%Cr-9%Ni-Mo)

Typical applications

Welding of 23%Cr-9%Ni-3%Mo stainless steels (UNS S31803, STS 329J1/329J2L) A various applications of chemical engineering, shipbuilding and nuclear plant industries etc.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.40	1.75	8.70	22.70	3.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	840 {86}	28	-46℃:110 -196℃:50

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (mm)	200, 250			200, 250, 300		

Approved by

M-307Si

EN 12072 G 18 8 Mn

For stainless steel (Dissimilar joint welding)

Typical applications

Welding of dissimilar steel such as austenitic manganese steel to carbon steel forgings.The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.07	0.80	7.10	8.00	18.00

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	610 {62}	40	RT:110 -40℃:82

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (mm)	200, 250			200,250, 300		

Approved by

For stainless steel (18%Cr-8%Ni)

AWS A5.9 ER308
JIS Z 3321 Y308

M-308

Typical applications

Welding of 18%Cr-8%Ni stainless steels (AISI 301, 302, 304, 305, 308)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.04	0.38	1.90	9.80	19.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	610{62}	40	RT:110 -40℃:82

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (mm)	200, 250			200, 250, 300		

Approved by

For stainless steel (Low C, 18%Cr-8%Ni)

AWS A5.9 ER308L
JIS Z 3321 Y308L

M-308L

Typical applications

Welding of low carbon 18%Cr-8%Ni stainless steels (AISI 304L, 308L)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.38	1.90	9.80	19.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O2	570{58}	44	0℃:90 -196℃:60

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (mm)	200, 250			200,250, 300		

Approved by

M-309LSi

AWS A5.9 ER309LSi
JIS Z 3321 Y309LSi

For stainless steel
(Dissimilar joint welding)

Typical applications

Welding of austenitic stainless alloys of the 22%Cr-12%Ni low carbon types and for joining stainless steels to non-alloy or low-alloy steels. The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.75	2.28	13.70	23.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	590 {58}	40	0℃: 90

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-309LMo

AWS A5.9 ER309LMo
EN 12072 G 23 12 2L

For stainless steel
(Dissimilar joint welding)

Typical applications

Sutabile for dissimilar metal joint and underlaying on ferritic steels for overlaying stainless steel weld metals.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.45	1.45	14.50	23.20	2.61

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	660 {67}	33	0℃: 92 -40℃: 89

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(25%Cr-20%Ni)

AWS A5.9 ER310
JIS Z 3321 Y310

M-310

Typical applications

Welding of heat-resistant austenitic steels of the 25%Cr-20%Ni types(STS310S) It has good general oxidation resistance, especially at high temperature.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.10	0.10	1.73	20.90	26.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	600 {61}	40	0℃: 110

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(Cladding or Dissimilar joint)

AWS A5.9 ER312
JIS Z 3321 Y312

M-312

Typical applications

Welding of stainless steel of the 29%Cr-9%Ni types.
This wire is widely used for joining of dissimilar metals such as carbon steel to stainless steel.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.10	0.43	1.72	8.70	30.40

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	730 {75}	30	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-316

AWS A5.9 ER316
JIS Z 3321 Y316

For stainless steel
(18%Cr-12%Ni-Mo)

Typical applications

Welding of stainless steel of 18%Cr-12%Ni-Mo types (STS316)
The low ferrite content improves the crack-resistance and corrosion-resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.40	1.62	12.10	18.40	2.3

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	580 {59}	38	0℃:100,196℃:50

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-316L

AWS A5.9 ER316L
JIS Z 3321 Y316L

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

Typical applications

Welding of austenitic stainless alloys of the 18%Cr-12%Ni-Mo low carbon types.
The alloy has particularly good corrosion-resistance and heat-resistance.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.39	1.89	11.80	18.60	2.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	570 {58}	40	0℃:90,196℃:62

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by BV, DNV, KR

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

AWS A5.9 ER316LSi
JIS Z 3321 Y316LSi

M-316LSi

Typical applications

Welding of austenitic stainless alloys of the 18%Cr-12%Ni-Mo low carbon types. The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.76	1.85	12.20	18.70	2.30

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	570 {58}	30	0 ℃: 110 -196 ℃: 40

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by ABS, TÜV

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

AWS A5.9 ER317L
JIS Z 3321 Y317L

M-317L

Typical applications

Welding of stainless alloys of the 19%Cr-12%Ni-3.5%Mo low carbon types (STS317, 317L) A various applications of chemical engineering, shipbuilding and nuclear plant industries etc.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.48	1.09	13.10	18.90	3.40

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	640 {65}	40	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-347

AWS A5.9 ER347
JIS Z 3321 Y347

For stainless steel
(18%Cr-8%Ni-Nb)

Typical applications

Welding of stainless alloys of the 18%Cr-9%Ni-Nb(Ti) types (STS 321, 347)
Nb component improves the resistance to intergranular corrosion of the weld metal.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.05	0.46	2.24	9.30	19.30	0.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	640 {65}	41	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-409Cb

AWS A5.9 ER409

For stainless steel
(13%Cr-Nb, Muffler welding)

Typical applications

Welding of ferrite stainless alloys of the 13%Cr types (AISI409)
It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.01	0.45	0.46	0.23	11.40	0.36

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S (850℃) N/mm²{kgf/mm²}	El (%)	IV (J)
Ar+2%O₂	30.6	56	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(13%Cr, Hardfacing)

AWS A5.9 ER410
JIS Z 3321 Y410

M-410

Typical applications

Welding of martensite stainless alloys of the 13%Cr types (STS 403, 410)
The alloy is suitable for the first layer of corrosion resistant weld claddings.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.34	0.39	-	12.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	PWHT
Ar+2%O₂	540 {55}	35	745℃ ×1hr

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(13%Cr, Hardfacing)

AWS A5.9 ER420

M-420

Typical applications

Welding of martensite stainless alloys of the 13%Cr types (STS 420)
The alloy is suitable for the first layer of corrosion resistant weld claddings

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.33	0.41	0.37	-	12.70

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	-	-	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-430

AWS A5.9 ER430
JIS Z3321 Y430

For stainless steel
(17%Cr, Multiffler welding)

Typical applications

Welding of ferrite stainless alloys of the 17%Cr types (AISI 430, dissimilar steels) It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.33	0.44	-	16.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	510 {52}	35	PWHT:745℃ ×1hr

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

M-430LNb

For stainless steel
(18%Cr-Nb, Muffler welding)

Typical applications

Welding of ferrite stainless alloys of the 17%Cr-Nb types (STS 429, 444) The alloy has the high tensile strength at the high temperature atmosphere.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.01	0.49	0.46	0.20	18.50	0.50

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	48.1	45	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(17%Cr-Mo, Hardfacing)

M-430Mo

Typical applications

Welding of ferrite stainless alloys of the 17%Cr-Mo types (STS 430)
It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.17	0.48	0.45	0.40	17.30	1.10

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	-	-	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

For stainless steel
(17%Cr-Ti, Muffler welding)

M-430Ti

Typical applications

Welding of ferrite stainless alloys of the 17%Cr-Ti types (STS 430)
Ti component improves the welding properties, such as wetting. corrosion resistance

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Ti
0.05	0.85	0.49	0.40	17.30	0.40

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar+2%O₂	-	-	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool. (kg)	5, 12.5, 20					
Pailpack. (kg)	200, 250			200, 250, 300		

Approved by

جدول خلاصه محصولات برای Covered Arc

Product	Standard			Application
	AWS	JIS	KS	
KW-A690	ENiCrFe-7	-	-	Welding of Ni-Cr-Fe alloy steel (Inconel690). Welding of different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
KNCF-3	ENiCrFe-3	DNiCrFe-3	DNiCrFe-3	Welding of Ni-Cr-Fe alloy steel(Inconel600,601)
KW-A625	ENiCrMo-3	-	-	For shielded-metal-arc welding of Inconel 625, Incoloy 825 and other Mo-Containing stainless steels.

KW-A690

AWS ENiCrFe-7

FOR NICKEL ALLOY

Typical applications

Welding of Ni-Cr-Fe alloy steel (Inconel690).
Welding of different materials, such as inconels, inconel and low alloy steels, stainless steels and low alloy steels.

Coating

Lime titania type.

Characteristics on Usage

① Easy slag removal and stable arc.
② Excellent heat-resistance, corrosion resistance and mechanical quality of all-weld-metal.
③ Redry the electrode about 1hour at 300~350℃ when the welding electrode is humid

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Fe	Ni	Cr	Nb+Ta
0.05	0.52	1.45	10.1	Rem.	29.5	1.2

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	El (%)
670 {68}	44

Sizes available and recommended currents (AC or DC ⊕, ⊖)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~80	90~130	120~150	150~180
	V&OH	55~70	80~100	100~140	–

Welding positions



Approved by

For Nickel Alloy
(Inconel 600,601)

AWS A5.11 ENiCrFe-3
JIS Z 3224 DNiCrFe-3
KS D 7021 DNiCrFe-3

KNCF-3

Typical applications

Welding of Ni-Cr-Fe alloy steel (Inconel600, 601).
Welding of different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.

Coating

Low hydrogen type.

Characteristics on Usage

① KNCF-3 makes safety welding with good weldability and usability.
② Excellent heat-resistance, corrosion resistance and mechanical quality of all-weld-metal.
③ Redry the electrode about 1hour at 300~350℃ when the welding electrode is humid

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Fe	Ni	Cr	Nb+Ta
0.06	0.42	7.95	3.9	69.1	16.2	1.9

Typical mechanical properties of all-weld-metal

T · S N/mm² {kgf/mm²}	El (%)
700 {71}	35

Sizes available and recommended currents (DC ⊕)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~80	90~130	120~150	150~180
	V&OH	55~70	80~100	100~140	–

Welding positions



Approved by

For Nickel Alloy
(Inconel 625)

AWS A5.11 ENiCrMo-3

KW-A625

Typical applications

For shielded-metal-arc welding of Inconel 625, Incoloy 825 and other molybdenum-containing stainless steels. The weld metal has high strength at room and elevated temperatures and has exceptional corrosion resistance, including resistance to pitting, crevice corrosion, etc.

Coating

Lime titania type.

Characteristics on Usage

① The electrodes provide excellent operability for groove and fillet welding in the downhand position.
② It has easy slag removal, low spatter generation and stable arc characteristics.
③ Redry the electrode about 1hour at 300~350℃ when the welding electrode is absorbed at moisture.

Typical chemical composition of all-weld-metal (%)

C	Mn	Fe	Si	Ni	Cr	Mo	Nb+Ta
0.03	0.54	1.64	0.22	Rem.	21.9	8.6	3.83

Typical mechanical properties of all-weld-metal

T·S N/mm² {kgf/mm²}	El (%)
768 {78}	40

Sizes available and recommended currents (DC ⊕)

Dia. (mm)		2.6	3.2	4.0	5.0
Length (mm)		300	350	350	350
Amp.	Flat	60~90	90~120	140~180	170~210
	H-Fillet	60~90	70~110	120~160	130~170

Welding positions



Approved by

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جدول خلاصه محصولات برای جوشکاری MIG

Product	Standard			Application
	AWS	JIS	KS	
KW-MCuNi9	-	YCuNi-1	-	Welding of Cu-Ni (90Cu/10Ni) alloys.
KW-MCuAl A1	ERCuAl-A1	-	-	Welding of Al-Bronze(Al 8%) Alloy. Surfacing in requiring corrosion resistance and wear resistance.
KW-M617	ERNiCrCoMo-1	-	-	Welding of Inconel 617 alloy. Dissimilar combinations of High temperature alloys.
KW-MCuNi	ERCuNi	YCuNi	YCuNi	Welding of Cu-Ni(70%Cu-30%Ni) Cupro Nickel Alloys.
KW-MCuAl A2	ERCuAl-A2	YCuAl	YCuAl	Welding of Al-Bronze(Al 9%) Alloy. Surfacing in requiring corrosion resistance and wear resistance
KW-MCuSi	ERCuSi-A	YCuAl B	YCuAl B	Welding of Silicon Brozone(Si 3%) Alloy. Welding of copper-silicon and copper-zinc base metals, to themselves also to steel
KW-M61	ERNi-1	YNi-1	YNi-1	Welding of pure nickel and nickel alloy. Repair welding of cast iron.
KW-M82	ERNiCr-3	YNiCr-3	YNiCr-3	Welding of Ni-Cr-Fe alloys (Inconel 600 alloy) Welding of carbon steel, stainless steel to Inconel.
KW-M625	ERNiCrMo-3	YNiCrMo-3	YNiCrMo-3	Welding of Ni-Cr-Mo alloys (Hastelloy C) Surfacing steel with Ni-Cr-Mo weld metal.
KW-M276	ERNiCrMo-4	YNiCrMo-4	YNiCrMo-4	Welding of low carbon Ni-Cr-Mo alloy. Welding of low carbon Ni-Cr-Mo alloy to steel and to other nickel base alloys.
KW-M690	ERNiCrFe-7	-	-	Welding of Ni-Cr-Fe alloy (Inconel 690)
KW-M60	ERNiCu-7	YNiCu-7	YNiCu-7	Welding of Ni-Cu alloys (Monel) Surfacing steel with Ni-Cu alloy weld metal.

For Nickel Alloy
(Nickel, 200, 201)

AWS A5.14 ERNi-1
JIS Z 3334 YNi-1
KS D 7045 YNi-1

KW-M61

Typical applications

Welding of pure nickel and nickel alloy. Repair welding of cast iron.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Mo	Ti
0,03	0,30	0,30	–	93,00	–	3,00

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	450 {46}	29	–

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	200, 250			200, 250, 300		

Approved by

For Nickel Alloy
(Inconel 600, 690)

AWS A5.14 ERNiCr-3
JIS Z 3334 YNiCr-3
KS D 7045 YNiCr-3

KW-M82

Typical applications

Welding of Ni-Cr-Fe alloys.(Inconel 600 alloy)
Welding of carbon steel, stainless steel to Inconel.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Fe	Nb+Ta
0,03	0,05	3,00	19,80	Rem	1,00	2,50

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	640 {65}	36	–

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	200, 250			200, 250, 300		

Approved by

KW-M625

AWS A5.14 ERNiCrMo-3
JIS Z 3334 YNiCrMo-3
KS D 7045 YNiCrMo-3

For Nickel Alloy
(Inconel 625)

Typical applications

Welding of Ni-Cr-Mo alloys.(Hastelloy C) Surfacing steel with Ni-Cr-Mo weld metal.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0,02	0,02	0,20	21,50	REM	8,60	3,70

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	770 {79}	41	–

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Spool	(kg)	5, 12.5, 20						
Pailpack	(kg)	200, 250			200, 250, 300			

Approved by ABS

KW-M276

AWS A5.14 ERNiCrMo-4
JIS Z 3334 YNiCrMo-4
KS D 7045 YNiCrMo-4

For Hastelloy
(C-276)

Typical applications

Welding of low carbon Ni-Cr-Mo alloy.
Welding of low carbon Ni-Cr-Mo alloy to steel and to other nickel base alloys.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Mo	W
0,01	0,06	0,80	15,90	REM	16,00	3,60

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	740 {76}	32	–

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Spool	(kg)	5, 12.5, 20						
Pailpack	(kg)	200, 250			200, 250, 300			

Approved by

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KW-M690

For Nickel Alloy (Inconel 690)

AWS A5.11 ENiCrFe-7

Typical applications
Welding of Ni-Cr-Fe alloy.(Inconel 690)

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Mo	Ti
0.016	0.26	0.33	29.70	59.40	0.01	9.10

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	690 {70}	40	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

KW-M60

For Monel Alloy (Monel 400,405)

AWS A5.14 ERNiCu-7
JIS Z 3334 YNiCu-7
KS D 7045 YNiCu-7

Typical applications
Welding of Ni-Cu alloys.(Monel) Surfacing steel with Ni-Cu alloy weld metal.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Cu	Ti
0.01	0.19	3.44	–	Rem	28.90	2.30

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	510 {52}	30	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

KW-M617

AWS A5.14 ERNiCrCoMo-1

For Nickel Alloy (Inconel 617)

Typical applications
Welding of Inconel 617 alloy.
Dissimilar combinations of High temperature alloys.

Typical chemical composition of wire (%)

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0.07	0.30	0.30	22.10	Rem	8.70	11.10	11.10

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	780 {80}	40	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

KW-MCuNi

AWS A5.7 ERCuNi
JIS Z3341 YCuNi-3
KS D7044 YCuNi-3

For Cupper Alloy (70%Cu-30%Ni alloy)

Typical applications
Welding of Cu-Ni(70%Cu-30%Ni) Cupro Nickel Alloys.

Typical chemical composition of wire (%)

C	Si	Mn	Cu	Ni	Ti
0.03	0.10	0.80	Rem	31.00	0.40

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	510 {52}	30	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

KW-MCuNi9

For Cupper Alloy (90%Cu-10%Ni alloy)

JIS Z 3341 YCuNi-1
KS D 7044 YCuNi-1

Typical applications

Welding of Cu-Ni(90%Cu-10%Ni) Cupro Nickel Alloys.

Typical chemical composition of wire (%)

C	Si	Mn	Cu	Ni	Ti
0.01	0.05	0.90	Rem	10.50	0.20

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	370 {38}	37	-

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	200, 250			200, 250, 300		

Approved by

KW-MCuAlA1

For Aluminume Bronze Alloy (Cu-6.0~8.5%Al)

AWS A5.7 ERCuAl-A1

Typical applications

Welding of Al-Bronze(Al 8%) Alloy.
Surfacing in requring corrosion resistance and wear resistance.

Typical chemical composition of wire (%)

Cu	Zn	Mn	Fe	Si	Al	Pb
Rem	0.01	0.30	0.16	0.06	8.20	0.01

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	535 {55}	39	-

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	200, 250			200, 250, 300		

Approved by

KW-MCuAlA2

AWS A5.7 ERCuAl-A2
JIS Z 3341 YCuAl
KS D 7044 YCuAl

For Aluminume Bronze Alloy (Cu-8.5~11.0%Al)

Typical applications

Welding of Al-Bronze(Al 9%) Alloy.
Surfacing in requring corrosion resistance and wear resistance.

Typical chemical composition of wire (%)

Cu	Zn	Mn	Fe	Si	Al	Pb
Rem	0.01	0.10	0.85	0.06	9.20	0.01

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	556 {57}	32	-

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	200, 250			200, 250, 300		

Approved by

KW-MCuSi

AWS A5.7 ERCuSi-A
JIS Z 3341 YCuSi B
KS D 7044 YCuSi B

For Silicon Bronze Alloy (Cu-3%Si)

Typical applications

Welding of Silicon Bronze(Si 3%) Alloy. Welding of copper-sillicon and copper-zinc base metals, to themselves and also to steel.

Typical chemical composition of wire (%)

Cu	Zn	Mn	Fe	Si	Al	Pb
Rem	0.005	0.89	0.05	3.00	0.005	0.05

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	375 {38}	43	-

Package

Dia.	(mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool	(kg)	5, 12.5, 20					
Pailpack	(kg)	100, 200, 250			200, 250, 300		

Approved by

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جدول خلاصه محصولات برای جوشکاری TIG

Product	Standard			Application
	AWS	JIS	KS	
KW-TCuNi	ERCuNi	YCuNi-3	YCuNi-3	Welding of Cu-Ni alloys.
KW-T617	ERNiCrCoMo-1	-	-	Welding of Inconel 617 alloy. Dissimilar combinations of High temperature alloys.
KW-TCuNi9	-	YCuAl-1	YCuAl-1	Welding of Cu-Ni(90%Cu-10%Ni) Cupro Nickel Alloys
KW-T61	ERNi-1	YNi-1	YNi-1	Welding of pure nickel and nickel alloy. Repair welding of cast iron.
KW-T82	ERNiCr-3	YNiCr-3	YNiCr-3	Welding of Ni-Cr-Fe alloys. (Inconel 600 alloy) Welding of carbon steel, stainless steel to Inconel.
KW-T625	ERNiCrMo-3	YNiCrMo-3	YNiCrMo-3	Welding of Ni-Cr-Mo alloys. (Hastelloy C) Surfacing steel with Ni-Cr_Mo weld metal.
KW-T276	ERNiCrMo-4	YNiCrMo-4	YNiCrMo-4	Welding of low carbon Ni-Cr-Mo alloy. Welding of low carbon Ni-Cr-Mo alloy to steel and to other nickel base alloys.
KW-T690	ERNiCrFe-7	-	-	Welding of Ni-Cr-Fe alloy.
KW-T60	ERNiCu-7	YNiCu-7	YNiCu-7	Welding of Ni-Cu alloys. (Monel) Surfacing steel with Ni-Cu alloy weld metal.

KW-T617

AWS ERNiCrCoMo-1

FOR INCONEL 617 ALLOY

Typical applications

Welding of Inconel 617 alloy.
Dissimilar combinations of High temperature alloys.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0.07	0.30	0.30	22.10	Rem	8.70	11.10	1.40

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	780 {80}	40	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by

KW-MCuNi

AWS A5.7 ERCuNi
JIS Z3341 YCuNi-3
KS D7044 YCuNi-3

For Cupper Alloy (70%Cu–30%Ni alloy)

Typical applications

Welding of Cu-Ni(70%Cu-30%Ni) Cupro Nickel Alloys.

Typical chemical composition of wire (%)

C	Si	Mn	Cu	Ni	Ti
0.03	0.10	0.80	Rem	31.00	0.40

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	510 {52}	30	–

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

KW-TCuNi

AWS ERCuNi
JIS YCuNi-3
KS YCuNi-3

FOR 70Cu-30Ni CUPRO NICKEL ALLOY

Typical applications

Welding of Cu-Ni(70%Cu-30%Ni) Cupro Nickel Alloys.

Typical chemical composition of rod (%)

C	Si	Mn	Cu	Ni	Ti
0.03	0.10	0.80	Rem	31.00	0.40

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	510 {52}	30	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by ABS

FOR PURE NICKEL AND NICKEL AlloY

AWS ERNi-1
JIS YNi-1
KS YNi-1

KW-T61

Typical applications

Welding of pure nickel and nickel alloy.
Repair welding of cast iron.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Mo	Ti
0.03	0.30	0.30	–	93.00	–	3.00

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	450 {46}	29	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

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KW-T625

AWS ERNiCrMo-3
JIS YNiCrMo-3
KS YNiCrMo-3

FOR INCONEL 625 ALLOY

Typical applications

Welding of Ni-Cr-Mo alloys.(Hastelloy C)
Surfacing steel with Ni-Cr-Mo weld metal.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Mo	Ti
0.02	0.22	0.20	21.50	Rem	8.60	3.70

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	770 {79}	41	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by

KW-T82

AWS A5.14 ERNiCr-3
JIS Z 3334 YNiCr-3
KS D 7045 YNiCr-3

For Nickel Alloy (Inconel 600,690)

Typical applications

Welding of Ni-Cr-Fe alloys.(Inconel 600, 601, 690 alloy)
Welding of carbon steel, stainless steel to Inconel.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Fe	Nb+Ta
0.03	0.05	3.00	19.80	Rem	1.00	2.50

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	640 {65}	36	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by

KW-T690

FOR INCONEL 690 ALLOY

AWS ERNiCrFe-7
JIS ERNiCrFe-7

Typical applications

Welding of Ni-Cr-Fe alloy.(Inconel 690)

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.06	0.26	0.33	29.70	59.40	0.01	9.10

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	690 {70}	40	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by

KW-T276

For Hastelloy (C-276)

AWS A5.14 ERNiCrMo-4
JIS Z 3334 YNiCrMo-4
KS D 7045 YNiCrMo-4

Typical applications

Welding of low carbon Ni-Cr-Mo alloy.(Hastelloy C276)
Welding of low carbon Ni-Cr-Mo alloy to steel and to other nickel base alloys.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Fe	W
0.01	0.06	0.8	15.9	Rem	5.5	3.6

Typical mechanical properties of all-weld-metal

Shielding gas	T · S N/mm²{kgf/mm²}	El (%)	Remark
Ar	740 {76}	32	–

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight (kg)	5						
Length (mm)	1000						

Approved by

KW-T60

AWS A5.14 ERNiCu-7
JIS Z 3334 YNiCu-7
KS D 7045 YNiCu-7

For Monel Alloy
(Monel 400)

Typical applications

Welding of Ni-Cu alloys.(Monel 400, K404, K-500)
Surfacing steel with Ni-Cu alloy weld metal.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Ni	Cu	Ti
0.01	0.19	3.44	–	REM	28.90	2.30

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	510 {52}	31	–

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight	(kg)	5						
Length	(mm)	1000						

Approved by

KW-TCuNi9

JIS Z 3341 YCuNi-1
KS D 7044 YCuNi-1

For Cupper Alloy
(90%Cu-10%Ni alloy)

Typical applications

Welding of Cu-Ni(90%Cu-10%Ni) Cupro Nickel Alloys.

Typical chemical composition of rod (%)

C	Si	Mn	Cu	Ni	Ti
0.01	0.05	0.90	Rem	10.50	0.20

Typical mechanical properties of all-weld-metal

Shielding gas	T·S N/mm²{kgf/mm²}	El (%)	Remark
Ar	370 {38}	37	–

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight	(kg)	5						
Length	(mm)	1000						

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FOR CARBON STEEL

AWS R45
JIS GA46
KS GA46

T-40

Typical applications

Low carbon steel for oxyfuel gas welding
Fuel gas : Acetylene (C_2H_2)

Characteristics on Usage

① Suitable for repair welding of thin sheet, tube, and small diameter pipe.
② In welding performance, oxyacetylene flame keeps neutral flame.

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.04	0.02	0.45	0.013	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	El (%)	Conditions
450 {46}	20	S · R
500 {51}	17	N.S · R

Package

Dia. (mm)	1.0	1.6	2.0	2.6	3.2	4.0	5.0
Length (mm)	1,000						
Weight per packet (kg)	5						

Approved by

EF-200H/KD-60

AWS F8 PO-EA3-A3
JIS S572-M

FOR HEAT-RESISTINS STEEL

Typical applications

Single or multi-pass submerged arc welding of 0.5%Mo steel used for pressure vessels and boilers.

Characteristics on Usage

① Bead appearance and slag removal are excellent.
② Excellent impact properties and resistance against porosity.
③ Redry the flux at 250~350℃ for more than 60 mimutes.
④ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Mn	Si	S	P	Mo	Cu
0.08	1.62	0.15	0.013	0.013	0.49	0.08

Typical mechanical properties of all-weld-metal

Y · P		T · S		El	Charpy V-notch J (kgf · m)		Base metal		
N/mm²(kgf/mm²)		N/mm²(kgf/mm²)		(%)	-40℃	-50℃	Class	Thick (mm)	PWHT
581	{59}	639	{64}	31	70 {7}	50 {5}	ASTM A161	25	620℃X1hr

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp. (A)	Volt. (V)	Travel speed (cm/min)	Pass
25	4.0		600	30	40~50	1~14

Approved by

FOR HEAT-RESISTINS STEEL

AWS F8P0-EB2-B2
JIS S572-1CM

EF-200H/KD-B2

Typical applications

Single or multi-pass submerged arc welding of 1.25%Cr-0.5%Mo steel. used for oil refining equipment, fossil power equipment, etc.

Characteristics on Usage

① Bead appearance and slag removal are excellent.
② Excellent impact properties and resistance against porosity.
③ Redry the flux at 250~350℃ for more than 60 mimutes.
④ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Mn	Si	S	P	Cr	Mo	Cu
0.07	0.75	0.21	0.010	0.011	1.11	0.44	0.10

Typical mechanical properties of all-weld-metal

Y · P		T · S		El	Charpy V-notch J (kgf · m)		Base metal		
N/mm²(kgf/mm²)		N/mm²(kgf/mm²)		(%)	-18℃	-29℃	Class	Thick (mm)	PWHT
546	{55}	617	{62}	27	65 {6}	50 {5}	ASTM A387	25	690℃X1hr

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp. (A)	Volt. (V)	Travel speed (cm/min)	Pass
25	4.0		600	30	40~50	1~14

Approved by

تلفن : ۶۶۷۵۲۷۹۲ - ۶۶۷۵۲۷۹۱ (۰۲۱)

جدول خلاصه محصولات برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
G-50 × KD-50	F7A2-EH14	S502-H	FS-FG2 x YS-S6	Butt and fillet welding of ships, machines, bridges, steel structures and general fabrications.
G-60 × KD-50	F7A2-EH14	S502-H	FS-FG2 × YS-S6	Butt and fillet welding of ships, machines, vehicles, bridges and steel structures. Suitable for single or multi-layer welding of one side or both sides of steel plates in I groove, X groove, Y groove and U(V)groove.

G-50×KD-50

AWS F7A2-EH14
JIS S502-H
KS F5-FG2×Y5-S6

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Butt and fillet welding of ships, machines, bridges, steel structures and general fabrications.

Characteristics on Usage

① Insensitive to rust, scales, oil dirts of the surface to be welded.
② Excellent resistance against porosities.
③ Economical because of less consumption of flux and high melting ratio.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base metal	
					Class	Thick (mm)
0.12	0.24	1.38	0.013	0.011	SM 400	20
0.07	0.33	1.78	0.016	0.012	SM 490	25

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J{kgf · m}		Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-29℃	0℃	Class	Thick (mm)
390 {40}	500 {51}	30	30 {3}	40 {4}	SM 400	20
410 {42}	520 {53}	30	60 {6}	80 {8}	SM 490	25

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp.	Volt.	Welding method	Travel speed (cm/min)	Pass
20	4.8		800 900	35 37	General	42 34	① ②
25	4.0		600	30	AWS A 5.17	40~50	1~14

Approved by

G-60×KD-50

FOR HIGH TENSILE STRENGTH STEEL

AWS F7A2-EH14
JIS S502-H
KS F5-FG2×Y5-S6

Typical applications

Butt and fillet welding of ships, machines, vehicles, bridges and steel structures. Suitable for single or multi-layer welding of one side or both sides of steel plates in I groove, X groove, Y groove and U(V) groove.

Characteristics on Usage

① Insensitive to rust, scales, oil and dirts of the surface to be welded.
② Excellent resistance against herringbone and porosities.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base metal	
					Class	Thick (mm)
0.10	0.27	1.35	0.016	0.015	SM 400	20
0.08	0.45	1.85	0.014	0.013	SM 490	25

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J{kgf · m}		Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-29℃	0℃	Class	Thick (mm)
380 {39}	480 {49}	31	40 {4}	60 {6}	SM 400	20
430 {44}	560 {57}	29	60 {6}	100 {10}	SM 490	25

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp.	Volt.	Welding method	Travel speed (cm/min)	Pass
20	4.8		800 900	34 36	General	40 35	① ②
25	4.0		600	30	AWS A 5.17	40~50	1~14

Approved by

EF-200LT×KD-60

AWS A5.23 F8A(P)8-EA3-G
JIS Z 3183 S584-H
KS B 0531 S584-H

For low temperature Service steel(560MPa)

Typical applications

Single and multi-layer welding of 560N/mm² aluminium-killed steels for low temperature service forofffshore structures, low temperature service equipments and other structures in cold regions.

Characteristics on Usage

① Neutral flux for multi-pass welding.
② Excellent impact toughness at low temperature down to -60℃.
③ Outstanding welding characteristics and bead profile.
④ Applicable to both AC and DC(+).

Notes on usage

① Redry the flux at 250~350℃ for 60 minutes before use.
② Add new flux periodically when continuously reusing the flux.
③ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Ti	B	Mo	Base Metal	Th. (mm)
0.07	0.14	1.50	0.013	0.010	0.02	0.004	0.46	SM570	25
0.07	0.30	1.52	0.012	0.010	0.03	0.004	0.40	FH36	20

Typical mechanical properties of all-weld-metal

Y·P N/mm²{kgf/mm²}	T·S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf·m} −51℃	−55℃	−62℃	Base Metal	Th. (mm)
610 {62}	650 {66}	27	100 {10}	–	80 {8}	SM570	25
–	620 {63}	–	–	100 {10}	–	FH36	20

Typical welding conditons

Th. (mm)	dia. (mm)	Groove Design (mm)	Pass	Amp. (A)	Volt (V)	Speed (cm/Min.)	Remarks
25	4.0		1~14	550	29	45	AWS A5.23
20	4.0		1st	750	34	40	
			2nd	850	37	55	

Approved by

DNV

EF-200LT×KD-50

For low temperature Service steel(490MPa)

AWS A5.17 F7A(P)8-EH14
JIS Z 3183 S502-H
KS B 0531 S502-H

Typical applications

Single and multi-layer welding of aluminium-killed steels for low temperature service for offshore structures low temperature service equipments and other structures in cold regions.

Characteristics on Usage

① Neutral flux for multi-pass welding.
② Excellent impact toughness at low temperature down to -60℃ and CTOD.
③ Outstanding welding characteristics and bead profile.
④ Applicable to both AC and DC(+).

Notes on usage

① Redry the flux at 250~350℃ for 60 minutes before use.
② Add new flux periodically when continuously reusing the flux.
③ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Ti	B	Base Metal	Th. (mm)
0.08	0.18	1.55	0.021	0.010	0.02	0.004	SM490	25
0.08	0.20	1.49	0.020	0.004	0.02	0.003	API 2W Gr.60	78

Typical mechanical properties of all-weld-metal

Y·P N/mm²{kgf/mm²}	T·S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf·m} −51℃	−62℃	Base Metal	Th. (mm)
530 {54}	570 {58}	30	140 {14}	120 {12}	SM490	25
510 {52}	560 {57}	30	–	100 {10}	API 2W Gr.60	78

Typical welding conditons

Th. (mm)	dia. (mm)	Groove Design (mm)	Pass	Amp. (A)	Volt (V)	Speed (cm/Min.)	Remarks
25	4.0		1~14	550	29	45	AWS A5.17
78	4.0		1(FCAW)	230	25	28	
			2	580	29	46	
			3~30	680	35	35	
			31~45	650	33	32	

Approved by

KR, ABS, LR, BV, DNV, GL, NK

جدول خلاصه محصولات برای High Tensile Strength Steel (Agglomerated type)

Product	Standard			Application
	AWS	JIS	KS	
EF-100H × KD-60	F8A(P)4-EA3-G	S584-H	FS-BN1 × YS-M5	Welding of vessels, steel structures, shipbuilding and pipes.
EF-260×KD-60	F8A(P)6-EA3-G	S584-H	FS-BN1/YS-M5	Single and multi-layer welding of 590N/mm2 class high tensile steel such as steel structures, pipes and machinery
EF-200V×KD-50	F7A(P)6-EH14	S502-H	S502-H	Single and multi-layer welding of ship buildings, structural steels, pressure vessels and bridges.
EF-200 x KD-40	F7A(P)4-EL8/12	S502-H	FS-BN1 x YS-S1	Welding of general structures such as ships, structural steels and general fabrications. Suitable for single or multi-layer welding of one side or both sides of steel plates in I groove, Y groove, X groove and U (V) groove.
EF-200K × KD-42	F7A(P)6-EM12K	S502-H	FS-BN1 x YS-S3	Welding of vessels, steel structures, and general fabrication.
EF-100 × KD-50	F7A(P)2-EH14	S502-H	FS-BN1 × YS-S6	Welding of vessels, steel structures, and shipbuilding.
EF-100S×KD-42	F7A(P)2-EM12K	S502-H	FS-BN1/YS-S3	Welding of vessels, steel structure and general fabrications.
EF-100H x KD-50	F7A(P)2-EH14	S502-H	FS-BN1 x YS-S6	Welding of general steel structures such as ships, structural steels, and other fabrications.

EF-100H×KD-60

AWS F8A(P)4-EA3-G
JIS S584-H
KS FS-BN1×YS-M5

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of vessels, steel structures, shipbuildings and pipes.

Characteristics on Usage

① Bead appearance and slag removal are excellent under higher welding speed with low current
② Excellent resistance against porosity and impact properties.
③ Repeated use of fluxes causes the deterioration of original performance of flux, so flux should be used by mixing new one properly.
④ Redry the flux at 250~350℃ for more than 60 minutes.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	Mo	Base metal	
				Class	Thick (mm)
0.07	0.23	1.14	0.47	API X65	20

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J (kgf · m)	Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-20℃	Class	Thick (mm)
560 {57}	640 {65}	29	70 {7}	API X65	20

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Pass		Amp.	Volt.	Travel speed (cm/min)
19	4.0		1st	L	770	33	110
				T	640	39	
			2nd	L	1050	33	120
				T	740	41	
25	4.0		1~14		600	30	40~50

Approved by

EF-260/KD-60

FFOR HIGH TENSILE STRENGTH STEEL

AWS F8A(P)6-EA3-G
JIS S584-H
KS FS-BN1/YS-M5

Typical applications

Single and multi-layer welding of 590N/mm² class high tensile steel such as steel structures, pipes and machinery

Characteristics on Usage

① Bead appearance and slag removal are excellent.
② Excellent impact properties and resistance against porosity.
③ Redry the flux at 250~350℃ for more than 60 mimutes.
④ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	S	P	Mo	Base metal	
						Class	Thick (mm)
0.05	0.13	1.41	0.012	0.014	0.48	SM 570TMC	25

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J (kgf · m)		Remark
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-40℃	-50℃	
640 {65}	685 {69}	27	100 {10}	80 {8}	As-welded
604 {61}	642 {65}	29	112 {11}	94 {9}	PWHT(620℃×1hr.)

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Pass	Amp. (A)	Volt. (V)	Travel speed (cm/min)
25	4.0		1~14	600	30	40~50

Approved by

EF-200V×KD-50

AWS A5.17 F7A(P)6-EH14
JIS Z 3183 S502-H
KS B 0531 S502-H

For 490MPa high Tensile steel

Typical applications

Single and multi-layer welding of ship buildings, structural steels, pressure vessels and bridges.

Characteristics on Usage

① Neutral flux for multi-pass welding.
② Excellent impact toughness at low temperature.
③ Bead appearance and slag removal are excellent.
④ Applicable to both AC and DC(+).

Notes on usage

① Redry the flux at 250~350℃ for 60 minutes before use.
② Add new flux periodically when continuously reusing the flux.
③ Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base Metal	Th. (mm)
0.09	0.13	1.57	0.019	0.011	SM490	25
0.07	0.10	1.43	0.015	0.010	DH36	36

Typical mechanical properties of all-weld-metal

Y·P	T·S	El	Charpy V-notch J (kgf·m)		Base Metal	Th.
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-20℃	-40℃	-51℃		(mm)
510 {52}	560 {57}	30	–	120 {12}	100 {10}	SM490	25
–	550 {56}	–	90 {9}	70 {7}	–	DH36	36

Typical welding conditons

Th. (mm)	dia. (mm)	Groove Design (mm)	Pass		Amp. (A)	Volt (V)	Speed (cm/Min.)	Remarks
25	4.0		1~14		550	29	45	AWS A5.17
36	4.8		1st	L	1100	36	60	
				T	800	37		
			2nd	L	1200	37	50	
				T	800	37		

Approved by

EF-200×KD-40

AWS F7A(P)4-EL8/12
JIS S502-H
KS F5-BN1×YS-S1

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of general structures such as ships, structural steels and general fabrications. Suitable for single or multi-layer welding of one side or both sides of steel plates in I groove, Y groove, X groove and U(V)groove.

Characteristics on Usage

① Excellent slag removal and usability at high currents.
② Excellent impact properties and beautiful bead appearance.
③ Repeated use of fluxes causes the deterioration of original performance of flux, so flux should be used by mixing new one properly.
④ Redry the flux at 250~350℃ for more than 60 minutes.

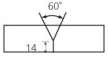
Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base metal	
					Class	Thick (mm)
0.09	0.53	1.25	0.015	0.012	SM 490	20

Typical mechanical properties of all-weld-metal

Y·P	T·S	El	Charpy V-notch J (kgf·m)		Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-30℃	-40℃	Class	Thick (mm)
470 {48}	550 {56}	28	90 {9}	80 {8}	SM 490	20

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp.	Volt.	Travel speed (cm/min)
20	4.8		820	32	35

Approved by

ABS, BV, DNV, GL, KR, LR, NK

FOR HIGH TENSILE STRENGTH STEEL

AWS F7A(P)0-EH14
JIS S502-H
KS FS-BN1×YS-S6

EF-100×KD-50

Typical applications

Welding of vessels, steel structures, shipbuildings.

Characteristics on Usage

① Bead appearance and slag removal are excellent under higher welding speed with low current.
② Excellent resistance against porosity and impact properties.
③ Repeated use of fluxes, so flux should be used by mixing new one properly.
④ Redry the flux at 250~350℃ for more than 60 minutes.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base metal	
					Class	Thick (mm)
0.09	0.45	1.30	0.014	0.012	SM400	20
0.08	0.47	1.43	0.014	0.012	SM490	25

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J (kgf · m)		Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-20℃	-30℃	Class	Thick (mm)
460 {47}	550 {56}	28	50 {5}	40 {4}	SM400	20
490 {50}	580 {59}	28	50 {5}	40 {4}	SM490	25

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp.	Volt.	Travel speed (cm/min)	Pass
25	4.0		600	30	40~50	1~14
3.2	2.4		350	28	30	1

Approved by

ABS, BV, DNV, GL, KR, LR, NK

FOR HIGH TENSILE STRENGTH STEEL

AWS F7A(P)6-EM12K
JIS S502-H
KS FS-BN1×YS-S3

EF-200K×KD-42

Typical applications

Welding of vessels, steel structures, and general fabrication.

Characteristics on Usage

① Bead appearance and slag removal are excellent under higher welding speed with low current
② Excellent resistance against porosity and impact properties.
③ Repeated use of fluxes causes the deterioration of original performance of flux, so flux should be used by mixing new one properly.
④ Redry the flux at 250~350℃ for more than 60 minutes.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Base metal	
					Class	Thick (mm)
0.09	0.45	1.30	0.014	0.012	SM 400	20
0.08	0.47	1.43	0.014	0.012	SM 490	25

Typical mechanical properties of all-weld-metal

Y · P	T · S	El	Charpy V-notch J (kgf · m)		Base metal	
N/mm²{kgf/mm²}	N/mm²{kgf/mm²}	(%)	-40℃	-50℃	Class	Thick (mm)
460 {47}	550 {56}	28	80 {8}	60 {6}	SM 400	20
490 {50}	580 {59}	28	90 {9}	70 {7}	SM 490	25

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Amp.	Volt.	Travel speed (cm/min)	Pass
25	4.0		600	30	40~50	1~14
3.2	2.4		350	28	150	1~2

Approved by

ABS, BV, DNV, GL, KR, LR, NK

EF-100S/KD-42

AWS F7A(P)2-EM12K
JIS S502-H
KS FS-BN1/YS-S3

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

Welding of vessels, steel structure and general fabrications.

Characteristics on Usage

① Active flux for limited pass welding
② High speed welding of 490N/mm2 high tensile steel
③ Good slag removal, good bead shape
④ Redry the flux at 250~350℃ for more than 60 mimutes
⑤ Excessive flux height may bring out poor bead appearance

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	S	P	Base metal	
					Class	Thick (mm)
0.05	0.52	1.63	0.021	0.012	SM490	25

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} -20℃	Charpy V-notch J {kgf · m} -30℃	Remark
455 {56}	591 {60}	30	80 {8}	70 {7}	As-welded
510 {52}	584 {59}	31	85 {8}	72 {7}	PWHT(620℃X1hr)

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Pass	Amp. (A)	Volt. (V)	Travel speed (cm/min)
25	4.0		1~14	600	30	40~50

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FOR HIGH TENSILE STRENGTH STEEL

AWS F7A(P)2-EH14
JIS S502-H
KS FS-BN1×YS-S6

EF-100H×KD-50

Typical applications

Welding of general steel structures such as ships, structural steels, and other fabrications.

Characteristics on Usage

① Bead appearance and slag removal are excellent under higher welding speed with low current.
② Suitable for single or multi-layer welding of one side or both sides of steel plates.
③ Excellent impact properties and beautiful bead appearance.
④ Redry the flux at 250~350℃ for more than 60 minutes.

Typical chemical composition of all-weld-metal (%)

C	Si	Mn	S	P	Base metal	
					Class	Thick (mm)
0.08	0.34	1.50	0.012	0.011	SM490	25

Typical mechanical properties of all-weld-metal

Y · P N/mm²{kgf/mm²}	T · S N/mm²{kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} -20℃	Charpy V-notch J {kgf · m} -30℃	Base metal Class	Base metal Thick (mm)
531 {54}	585 {60}	30	80 {8}	70 {7}	SM490	25

Typical welding conditons

Thick (mm)	Wire dia. (mm)	Groove dimension (mm)	Pass	Amp.	Volt.	Travel speed (cm/min)
25	4.0		1~14	600	30	40~50

Approved by

ABS, BV, DNV, GL, KR, LR, NK

جدول خلاصه محصولات برای Heat-Resisting Steel

Product	Standard			Application
	AWS	JIS	KS	
T-80SB2	ER80S-B2	YGT1CM	YGT1CM	1.25%Cr-0.5%Mo Heat Resistant steels.
T-90SB3	ER90S-B3	YGT2CM	YGT2CM	2.25%Cr-1%Mo Heat Resistant steels.
T-80D2	ER80S-D2	YGT M	YGT M	This rod uses TIG welding on carbon and low alloy steels such as AISI4130 where the tensile strength provided by plain carbon steel rod are inadequate. Welding of farm implements, automotive parts, pipes, light-gauge steels, low allow steels such as AISI4130 and high yield strength steels such as T-1.

T-80SB2

AWS ER80S-B2
DIN SG CrMo1
JIS YGT1CM

FOR HEAT-RESISTING STEEL

Typical applications

1.25%Cr-0.5%Mo Heat Resistant steels.

Characteristics on Usage

① Ar Gas is mainly used for the shielding
② Excellent mechanical and toughness properties after PWHT.
③ Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
④ Preheat at 100℃ to 200℃ and post weld heat treatment at 620℃ to 720℃ is necessary according to the plate thickness, type of steels, shape of base metals or under high restriction.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Mo
0.09	0.54	0.51	1.26	0.45

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
500 {51}	590 {60}	26	80 {80}

Approved by

FOR HEAT-RESISTING STEEL

AWS ER80S-D2
EN G4Mo
JIS YGT M

T-80D2

Typical applications

This rod uses TIG welding on carbon and low alloy steels such as AISI 4130 where the tensile strength provided by plain carbon steel rod are inadequate.
Welding of farm implements, automotive parts, pipes, light-gauge steels, low alloy steels such as AISI 4130 and high yield strength steels such as T-1.

Characteristics on Usage

① This rod is designed to give high strength welds on high sulfer bearing(free-machining) steels or medium carbon steels.
② This rod contains additional amounts of manganese and silicon which, produces weld deposits which have high ductility, excellent impact values and tensile strength.

Typical chemical composition of rod (%)

C	Si	Mn	Mo
0.08	0.63	1.85	0.50

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
610 {62}	700 {71}	22	180 {18}

Approved by

FOR HEAT-RESISTING STEEL

AWS ER80S-B2
DIN SG CrMo2
JIS YGT2CM

T-90SB3

Typical applications

2.25%Cr-1%Mo Heat Resistant steels.

Characteristics on Usage

① Ar Gas is mainly used for the shielding
② Excellent mechanical and toughness properties after PWHT.
③ Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
④ Preheat at 150℃ to 300℃ and post weld heat treatment at 680℃ to 730℃ is necessary according to the plate thickness, type of steels, shape of base metals or under high restriction.

Typical chemical composition of rod (%)

C	Si	Mn	Cr	Mo
0.09	0.47	0.66	2.31	1.00

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (0℃)
550 {56}	670 {68}	26	180 {18}

Approved by

جدول خلاصه محصولات برای High Tensile Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
T-50G	ER70S-G	YGT50	YGT 50	This rod uses TIG welding on all grades of carbon steel. It is generally used in root pass welding of pipes in all positions.
T-53	ER70S-3	YGT 50	YGT 50	This rod uses TIG welding on all grades of carbon steel. It is generally used in root pass and to support the welding when back pass is impossible.
T-70S2	ER70S-2	YGT 50	YGT 50	This rod uses TIG welding on all grades of carbon steels. Pipes, offshore drilling rigs, structural steel works, etc.
T-50	ER70S-6	YGT 50	YGT 50	This rod uses TIG welding on all grades of carbon steel.

T-50G

AWS ER70S-G
EN G2Ti
JIS YGT50

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

This rod uses TIG welding on all grades of carbon steel.
It is generally used in root pass welding of pipes in all positions.

Characteristics on Usage

① Excellent mechanical and toughness properties in low temperature conditions.
② Argon gas is mainly used for the shielding.
③ Proper arc length is 1~3mm,

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.08	0.61	1.21	0.012	0.009

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
470 {48}	560 {57}	32	110 {11}

Approved by

FOR HIGH TENSILE STRENGTH STEEL

AWS ER70S-3
EN G2Si
JIS YGT50

T-53

Typical applications

This rod uses TIG welding on all grades of carbon steel.
It is generally used in root pass and to support the welding when back pass is impossible.

Characteristics on Usage

① Excellent mechanical and toughness properties in low temperature conditions.
② Ar gas is mainly used for the shielding.

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.07	0.65	1.18	0.010	0.009

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
480 {49}	550 {56}	32	120 {12}

Approved by

T-70S2

AWS ER70S-2
EN G2Ti
JIS YGT 50

FOR HIGH TENSILE STRENGTH STEEL

Typical applications

This rod uses TIG welding on all grades of carbon steels.
Pipes, offshore drilling rigs, structural steel works, etc.

Characteristics on Usage

① This rod is a multiple deoxidized rod containing small amounts of zirconium, titanium and aluminum in addition to the manganese and silicon deoxidizers characteristic of steel rod group.
② This rod producing superior quality welds with minimum porosity even over rust and mill scale.

Typical chemical composition of rod (%)

C	Si	Mn	Ti	Al	Zr
0.07	0.54	1.18	0.07	0.08	0.04

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
490 {50}	570 {58}	29	180 {18}

Approved by

FOR 490MPa high Tensile steel

AWS A5.18 ER70S-6
JIS Z 3316 YGT50
KS D 7140 YGT50

T-50

Typical applications

This rod uses TIG welding on all grades of carbon steel.
It is generally used in root pass welding of pipes in all positions.

Characteristics on Usage

① Excellent mechanical and toughness properties in low temperature conditions.
② Argon gas is mainly used for the shielding.
③ Proper tungsten electrode extension from the tip of torch is 4~6mm in general.

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.07	0.82	1.52	0.010	0.010

Typical mechanical properties of all-weld-metal

Y · P N/mm² {kgf/mm²}	T · S N/mm² {kgf/mm²}	El (%)	Charpy V-notch J {kgf · m} (-29℃)
490 {50}	580 {59}	30	130 {13}

Approved by
ABS

جدول خلاصه محصولات برای Strength Steel

Product	Standard			Application
	AWS	JIS	KS	
T-2209	ER2209	-	-	Welding of 22%Cr-95%Ni-3%Mo (UNS S31803, s32900) steels.
T-308	ER308	Y308	Y308	Welding of low carbon 18%Cr-8%Ni steels such as AISI Types 304L and 308L.
T-308L	ER308L	Y308L	Y308L	Welding of low carbon 18%Cr-8%Ni steels.
T-308LSi	ER308LSi	Y308LSi	Y308LSi	Welding of base metals of similar alloys in wrought or cast forms. Improves the usability of the filler metal.
T-309	ER309	Y309	Y309	Welding of similar alloys in wrought or cast forms. Joining Type 304 to carbon steel, welding the clad side of Type 304 clad steels.
T-309L	ER309L	Y309L	Y309L	Welding of similar alloys in wrought or cast forms. Joining. Type 304 to carbon steel, welding the clad side of Type 304 clad steels.
T-309LSi	ER309LSi	Y309LSi	Y309LSi	Welding of similar alloys in wrought or cast forms. Joining Type 304 to carbon steel, welding the clad side of Type 304 clad steels.
T-310	ER310	Y310	Y310	Welding of similar composition alloys.
T-312	ER312	Y312	Y312	Welding of difficult-to-weld steel and similar composition alloy.
T-316	ER316	Y316	Y316	Welding of 18%Cr-12%Ni-Mo steels(AISI Type 316)
T-316L	ER316L	Y316L	Y316L	Welding of 18%Cr-12%Ni-Mo steels where the corrosion resistant qualities are required.
T-316LSi	ER316LSi	Y316LSi	Y316LSi	Improves the usability of the filler metal. Welding of low carbon 18%Cr-12%Ni-Mo steels.
T-317L	ER317L	Y317L	Y317L	Welding of low carbon 18%Cr - 12%Ni-3.5%Mo steels(AISI Type317L)
T-347	ER347	Y347	Y347	Welding of 18%Cr - 9%Ni-Cb steels(AISI Type347), 18%Cr-9%Ni-Ti steels (AISI Type321)
T-410	ER410	Y410	Y410	Welding of 13%Cr steel (AISI Type403,410)
T-430	ER430	Y430	Y430	Welding of 17%Cr steel and clad side type 403,405 clad steel. Welding of dissimilar steels, such as Cr-stainless steel to carbon steel.
T-420	ER420	-	-	Welding of marten site stainless alloys of the 13%Cr types (STS 420) The alloy is suitable for the first layer of corrosion resistant weld claddings.
T-309LMo	ER309LMo	-	-	Welding of dissimilar metal joint and underlying on ferritic steels for overlaying stainless steel weld metals.
T430LNb	-	-	-	Welding of ferrite stainless alloys of the 17%Cr types (AISI 430, dissimilar steels).
T-308H	ER308H	-	-	Welding of carbon 18%Cr-8%Ni stainless steels (AISI 304H).

T-2209

AWS A5.9 ER2209

For Duplex stainless steel
(22%Cr-9%Ni-Mo)

Typical applications
Welding of 23%Cr-9%Ni-3%Mo stainless steels (UNS S31803, STS 329J1/329J2L) A various applications of chemical engineering, shipbuilding and nuclear plant industries etc.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.40	1.75	8.70	22.70	3.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	815 {83}	35	-46℃:136

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by ABS

T-308

AWS A5.9 ER308
JIS Z 3321 Y308

For stainless steel
(18%Cr-8%Ni)

Typical applications
Welding of 18%Cr-8%Ni stainless steels (AISI 301, 302, 304)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.04	0.38	1.90	9.80	19.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	580 {59}	42	0℃:150 -196℃:40

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(Low C, 18%Cr-8%Ni)

AWS A5.9 ER308L
JIS Z 3321 Y308L

T-308L

Typical applications
Welding of low carbon 18%Cr-8%Ni stainless steels (AISI 301, 302, 304L, 308L)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.02	0.38	1.90	9.80	19.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	580 {58}	44	0℃:160 -196℃:80

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by BV, LR, DNV, KR, TÜV

For stainless steel
(18%Cr-8%Ni)

AWS A5.9 ER308H

T-308H

Typical applications
Welding of high carbon 18%Cr-8%Ni stainless steels (AISI 304H)
It provides better weldability together with excellent corrosion resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.05	0.42	2.06	9.80	19.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	590 {60}	42	-

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

T-308LSi

AWS A5.9 ER308LSi
JIS Z 3321 Y308LSi

For stainless steel
(Low C, 18%Cr-8%Ni)

Typical applications

Welding of low carbon 18%Cr-8%Ni stainless steels (AISI 304L, 308L)
The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.02	0.75	1.95	10.40	19.70

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	580 {59}	43	0℃:180 -196℃:80

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by CWB

T-309

AWS A5.9 ER309
JIS Z 3321 Y309

For stainless steel
(Dissimilar joint welding)

Typical applications

Welding of similar alloys in wrought or cast forms.
Welding of dissimilar steels, such as 304L to mild steel or low alloy steels.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.05	0.36	1.84	13.30	23.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	610 {62}	40	0℃:150

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(Dissimilar joint welding)

AWS A5.9 ER309L
JIS Z 3321 Y309L

T-309L

Typical applications

Welding of similar alloys in wrought or cast forms and clad side of type 304L clad steels.
The low ferrite content improves the crack-resistance and corrosion-resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.01	0.40	1.92	13.80	23.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	590 {60}	42	0℃:110

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by BV, LR, DNV, KR

For stainless steel
(Dissimilar joint welding)

AWS A5.9 ER309LSi
JIS Z 3321 Y309LSi

T-309LSi

Typical applications

Welding of austenitic stainless alloys of the 22%Cr-12%Ni low carbon types and for joining stainless steels to non-alloy or low-alloy steels.
The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.02	0.75	2.28	13.70	23.20

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	550 {56}	42	0℃:120

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

T-309LMo

AWS A5.9 ER309LMo
EN 12072 G23 12 2L

For stainless steel
(Dissimilar joint welding)

Typical applications

Suitable for dissimilar metal joint and underlaying on ferritic steels for overlaying Stainless steel weld metals.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.45	1.45	14.5	23.20	2.61

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV J{kgf.m}
Ar	660 {67}	33	0℃ : 92 {10} -40℃ : 89 {9}

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Spool (kg)	5, 12.5, 20					
Pailpack (kg)	200, 250			200, 250, 300		

Approved by

T-310

AWS A5.9 ER310
JIS Z 3321 Y310

For stainless steel
(25%Cr-20%Ni)

Typical applications

Welding of heat-resistant austenitic steels of the 25%Cr-20%Ni types(STS310S) It has good general oxidation resistance, especially at high temperature.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.10	0.43	1.73	20.90	26.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	600 {61}	40	0℃:110

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(Cladding or Dissimilar Joint)

AWS A5.9 ER312
JIS Z 3321 Y312

T-312

Typical applications

Welding of stainless steel of the 29%Cr-9%Ni types, wire is widely used for joining of dissimilar metals such as carbon steel to stainless steel.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.10	0.43	1.73	8.7	30.4

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	790 {81}	25	-

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(18%Cr-12%Ni-Mo)

AWS A5.9 ER316
JIS Z 3321 Y316

T-316

Typical applications

Welding of stainless steel of 18%Cr-12%Ni-Mo types (STS316)
The low ferrite content improves the crack-resistance and corrosion-resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.40	1.62	12.10	18.40	2.30

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	570 {58}	40	0℃:140 -196℃:50

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

T-316L

AWS A5.9 ER316L
JIS Z 3321 Y316L

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

Typical applications

Welding of austenitic stainless alloys of the 18%Cr-12%Ni-Mo low carbon types. The alloy has particularly good corrosion-resistance and heat-resistance.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.39	1.85	12.20	18.70	2.30

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	560 {57}	40	0℃:150 -196℃:50

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight.	(kg)	5						
Length.	(mm)	1000						

Approved by ABS, BV, LR, DNV, KR, TÜV

T-316LSi

AWS A5.9 ER316LSi
JIS Z 3321 Y316LSi

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

Typical applications

Welding of austenitic stainless alloys of the 18%Cr-12%Ni-Mo low carbon types. The high silicon content improves the welding properties, such as wetting.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.76	1.85	12.20	18.70	2.30

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	560 {57}	340	0℃:150 -196℃:50

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight.	(kg)	5						
Length.	(mm)	1000						

Approved by

T-317L

For stainless steel
(Low C, 18%Cr-12%Ni-Mo)

AWS A5.9 ER317L
JIS Z 3321 Y317L

Typical applications

Welding of stainless alloys of the 19%Cr-12%Ni-3.5%Mo low carbon types (STS317, 317L)A various applications of chemical engineering, shipbuilding and nuclear plant industries etc.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.49	1.85	14.1	18.70	3.4

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	560 {57}	340	0℃:150 -196℃:50

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight.	(kg)	5						
Length.	(mm)	1000						

Approved by

T-347

For stainless steel
(18%Cr-8%Ni-Nb)

AWS A5.9 ER347
JIS Z 3321 Y347

Typical applications

Welding of stainless alloys of the 18%Cr-9%Ni-Nb(Ti) types (STS 321, 347) Nb component improves the resistance to intergranular corrosion of the weld metal.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.05	0.46	2.24	9.30	19.30	0.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	630 {64}	40	0℃:90 -196℃:36

Package

Dia.	(mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight.	(kg)	5						
Length.	(mm)	1000						

Approved by

T-410

AWS A5.9 ER410
JIS Z 3321 Y410

For stainless steel
(13%Cr-Hardfacing)

Typical applications

Welding of martensite stainless alloys of the 13%Cr types (STS 403, 410) The alloy is suitable for the first layer of corrosion resistant weld claddings.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.02	0.34	0.39	-	12.80

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	PWHT
Ar	530 {54}	37	745℃ ×1hr

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

T-420

AWS A5.9 ER420

For stainless steel
(13%Cr-Hardfacing)

Typical applications

Welding of martensite stainless alloys of the 13%Cr types (STS 420)
The alloy is suitable for the first layer of corrosion resistant weld claddings.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.33	0.41	0.37	-	12.70

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	IV (J)
Ar	-	-	-

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(17%Cr-Muffler welding)

AWS A5.9 ER430
JIS Z 3321 Y430

T-430

Typical applications

Welding of ferrite stainless alloys of the 17%Cr types (AISI 430, dissimilar steels)
It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange.

Typical chemical composition of rod (%)

C	Si	Mn	Ni	Cr
0.02	0.33	0.44	-	16.60

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S N/mm²{kgf/mm²}	El (%)	PWHT
Ar	500 {51}	33	745℃ ×1hr

Package

Dia. (mm)	1.2	1.6	2.0	2.4	2.6	3.2	4.0
Weight. (kg)	5						
Length. (mm)	1000						

Approved by

For stainless steel
(18%Cr-Nb, Muffler welding)

T-430LNb

Typical applications

Welding of ferrite stainless alloys of the 17%Cr-Nb types(STS 429, 444)
The alloy has the high tensile strength at the high temperature atmosphere.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.01	0.49	0.46	0.20	18.5	0.50

Typical mechanical properties of all-weld-metal

Shielding Gas	T·S kgf/mm²{850℃}	El (%)	IV J {kgf.m}
Ar	48.1	45	-

Package

Dia. (mm)	0.8	0.9	1.0	1.2	1.4	1.6
Weight. (kg)	5, 12.5, 20					
Length. (mm)	200, 250			200, 250, 300		

Approved by

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