목록

Lloyd's Register

Certification date: 13 July 2021
Expiry date: 12 July 2024
Certificate number: 10378582
IATF Certificate number: 0410614

Certificate of Approval

This is to certify that the Management System of:

KISWEL LTD.

704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam 51544, Republic of Korea

has been approved by Lloyd's Register to the following standards:

IATF 16949:2016 (excluding product design)

Approval number(s): IATF 16949 – 0070575-001

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Manufacture of solid welding wires & rods, flux cored wires, submerged arc welding wires & fluxes and stainless steel welding wires & rods.

Il-Hyoung Lee

Korea Operations Manager

Issued by: Lloyd's Register Quality Assurance Limited

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Issued by: Lloyd's Register Quality Assurance Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

Lloyd's Register

Current issue date: 1 October 2020
Expiry date: 30 September 2023
Certificate identity number: 10293359

Original approval(s):
ISO 14001 - 22 September 1999

Certificate of Approval

This is to certify that the Management System of:

KISWEL LTD.

Busan Factory
70, Saebyeok-ro 63beon-gil, Sasang-gu, Busan 47018, Republic of Korea

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015

Approval number(s): ISO 14001 – 0070554-001

This certificate forms part of the approval identified by approval number: 0070554

The scope of this approval is applicable to:

Manufacture of solid welding wire & rods, flux cored wires, submerged arc welding wires & fluxes and stainless steel welding wires & rods.

Il-Hyoung Lee

Korea Operations Manager

Issued by: Lloyd's Register Quality Assurance (Korea) Ltd.

for and on behalf of: Lloyd's Register Quality Assurance Limited

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Lloyd's Register

Current issue date: 1 October 2020
Expiry date: 30 September 2023
Certificate identity number: 10293358

Original approval(s):
ISO 14001 - 22 September 1999

Certificate of Approval

This is to certify that the Management System of:

KISWEL LTD.

Changwon Factory
704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam 51544, Republic of Korea

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015

Approval number(s): ISO 14001 – 0070554-002

This certificate forms part of the approval identified by approval number: 0070554

The scope of this approval is applicable to:

Manufacture of solid welding wire & rods, flux cored wires, submerged arc welding wires & fluxes and stainless steel welding wires & rods.

Il-Hyoung Lee

Korea Operations Manager

Issued by: Lloyd's Register Quality Assurance (Korea) Ltd.

for and on behalf of: Lloyd's Register Quality Assurance Limited

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Lloyd's Register

Current issue date: 13 July 2021
Expiry date: 12 July 2024
Certificate identity number: 10376583

Original approval(s):
ISO 9001 - 6 January 2005

Certificate of Approval

This is to certify that the Management System of:

KISWEL LTD.

704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam 51544, Republic of Korea

has been approved by Lloyd's Register to the following standards:

ISO 9001:2015

Approval number(s): ISO 9001 – 0070575-501

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Manufacture of solid welding wires & rods, flux cored wires, submerged arc welding wires & fluxes and stainless steel welding wires & rods.

Il-Hyoung Lee

Korea Operations Manager

Issued by: Lloyd's Register Quality Assurance (Korea) Ltd.

for and on behalf of: Lloyd's Register Quality Assurance Limited

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Issued by: Lloyd's Register Quality Assurance (Korea) Ltd., 17th Floor Sinsong Building, 97 Yeoumaru-ro, Yeongdeungpo-gu, Seoul, 07327, Korea for and on behalf of: Lloyd's Register Quality Assurance Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

KR HELLAS LTD.
41, Athinas Av., Vouliagmeni,
GR-16671, Athens, Greece

TEL: +30-210-428-6736
FAX: +30-210-428-6728

Certificate No:
CPR-MD-1002-19

EC CERTIFICATE of Factory Production Control

THIS IS TO CERTIFY that KR Hellas Ltd., designated by the Hellenic Republic of Greece as Notified Body, did undertake the initial inspection of factory and factory production control according to REGULATION (EU) No. 305/2011 of The European Parliament and of the Council of 9 March 2011 and found that the factory and factory production control are comply with the all provisions described in the Annex ZA of the EN 13479:2017.

Manufacturer	**Name**	:	**KISWEL Co. Ltd. Changwon Plant**
	Address	:	**704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea**
Product Name		:	**Welding Consumables** **(Refer to Attachment for detailed description)**
Applied Standard		:	**EN 13479:2017** and relevant standards
Conformity System(S)		:	**System 2+**

This certificate is issued at Athens under the authority of the Hellenic Republic of Greece by KR Hellas Ltd., Notified Body No. 2198.

This certificate remains valid subject to annual surveillance, assessment and approval of factory production control as long as the conditions laid down in the harmonized technical specification in reference or the manufacturing conditions in the factory or the FPC itself are not modified significantly.

- Initially Issued Date : 21 March 2019
- Currently Issued Date : 10 July 2020
- Next Surveillance : 20 March 2021 (but not later than 20 June 2020)

CE
Notified Body No.2198

(KRH Endorse)

Park Joo-sung
CEO of KR Hellas Ltd.

Any person not a party to the contract pursuant which this document is delivered may not assert a claim against KRH for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgment, fault or negligence committed by personal of KRH in establishment or issuance of this document, and in connection with any activities for which it may provide. In this provision KRH shall mean the KR Hellas Ltd. as well as all its subsidiaries directors, officers, employees and any other acting on b half of KR Hellas Ltd.

KISWEL

DECLARATION OF PERFORMANCE

No. KC-25M-2019-03

1. Unique identification code of the product type: **»KC-25M«**

   i) EN ISO 14341 - A G 42 2 M21 2Si

   ii) EN ISO 14341 - B G 49A 2 M21 S3

2 Intended use/es : **Filler metals for fusion welding of metallic materials**

3 Manufacturer : **KISWEL LTD., #704, Gongdan-ro, Seongsan-gu Changwon-si, Gyeongsangnam-do, Korea**

4. Authorized representative : **n.r.**

5. System/s of AVCP : **System 2+**

6a. Harmonized standard **: EN 13479 : 2017 and relevant standards**

Notified body/ies :

KR Hellas Ltd., and identification No. 2198 (of the notified body as given in the DOP) performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of constancy of conformity of the factory production control.
Certificate No. CPR-MD-1002-19 on the basis of EN 13479.

6b. European Assessment Document : **n.r.,** European Technical Assessment : **n.r.,** Technical Assessment body : **n.r**
Notified body/ies : **n.r.**

7. Declared performance:

Essential characteristics (EN 13479: 2017, Anhang ZA)	Performance	Harmonized technical specification
Tolerances on dimensions	Passed	EN 13479:2017, EN ISO 544:2011
Elongation	i) ≥ 20 % ii) ≥ 18 %	EN 13479:2017, EN ISO 14341:2010
Tensile strength	i) 500 - 640 MPa ii) 490 - 670 MPa	EN 13479:2017, EN ISO 14341:2010
Yield strength	i) ≥ 420 MPa ii) ≥ 390 MPa	EN 13479:2017, EN ISO 14341:2010
Impact strength	i) ≥ 47J (-20 °C) ii) ≥ 27J (-20 °C)	EN 13479:2017, EN ISO 14341:2010
Chemical composition	Passed	EN 13479:2017, EN ISO 14341:2010
Durability	Passed	EN 13479:2017
Dangerous substances	Passed**	EN 13479:2017
Emission of radioactivity	not relevant	EN 13479:2017

**) Detailed information regarding dangerous substances refer to the safety data sheet on www.KISWEL.com

8. Appropriate Technical Documentation and/or specific Technical documentation : **n.r**

The performance of the product identified above is in conformity with the set or declared performance /s This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.
Signed for and on behalf of the manufacturer by:

Yangchool KANG, QA team Manager
(name and function)

Changwon Plant March 21,2019
(place and date of issue)

Y. C. Kang
(signature)

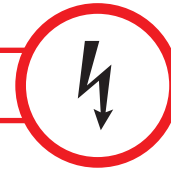
Abbreviations and marks with definitions

This welding handbook uses the folling abbreviations and marks if necessary.

Abbrev.And mark	Definition	Abbrev.And mark	Definition
AC	Alternating Current	NL	Number of Layer
A	Ampere	NR	Not Required
AP	All Positions	OD	Outer Diameter
AW	As-welded	OQ	Oil Quenching
Bal.	Balance	OS	Offset Strength
Ceq	Carbon equivalent	OSW	One-side Welding
CR	Cooling Rate	Pol	Polarity
DC	Direct Current	Pre.H	Preheat
DCEN	DC, Electrode Negative	PWHT	Postweld Heat Treatment
DCEP	DC, Electrode Positive	RA	Reduction of Area
Dia.	Diameter	RC	Redrying Conditons
EGW	Electrogas Arc Welding	RG	Root Gap
ESW	Electroslag Are Welding	RT	Room Temperature
EL	Elongation	SAW	Submerged Arc Welding
Ext	Extension of Wire	SG	Shielding Gas
F	Flat Position	SMAW	Shielding Metal Arc Welding
FN	Ferrite Number	SR	Stress Relief
FCW	Flux Cored Wire	SW	Solid Wire
GMAW	Gas Metal Arc Welding	TIG	Tungsten Inert Gas
GS	Groove Size	TMCP	Thermo-mechanical Control Process
GTAW	Gas Tungsten Arc Welding	TS	Tensile Strength
HAZ	Heat-affected Zone	Temp	Test Temperature
HF	Horizontal Fillet	V	Voltage
HI	Heat Input	VD	Vertical-Down Position
HT	High Tensile	VU	Verical-Up Position
Hv	Hardness	W	Width
HRC	Hardness	WP	Welding Position
HS	Hardness	WQ	Water Quenching
I PT	Interpass Temperature	YP	Yield Point
IV	Impact Value	≥	Maximum
L	Length	≥	Minimum
MAG	Metal Active Gas		
MIG	Metal Inert Gas		

Welding Position according ASME & ISO 6947

1 ! warning



A death from electric shock can be caused.

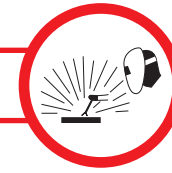
- Do not touch on the transition part.
  (The covered arc welding electrode squeezed in welding rod holder and the wires in welding are in the transitional status)
- Must use dried insulation tools. Do not break or wet tools.
- Set the high prevention equipment for the electric shock when doing applications in the high or small places.
  Use the safety rope when welding.
- Read through the manual and keep the suggestions before using the welding machine.
  Do not use the welding machine with off-cased or off-covered.
  Use the profit cable.
  Fix or change damaged cables by checking and repairing.

2 ! warning

The fume and the gas from welding can hurt the health.
Welding in small places can cause suffocation for the shortage of air.

- Keep away the head from the fume and gas.
- Use the breathing aid or ventilating device to prevent from suffocation by lack of air and poisoning by fume or noxious gas.
- Ventilate on the whole when welding indoor.
  Specially when welding at the small places, ventilate sufficiently or wear the breathing aid.
  At the same time, do the work under the trained supervisors.
- Do not weld near the places of removal of grease, rinsing, spraying and coating.
  Welding near those places maybe produce the noxious gas.
- Use the breathing aid or ventilate sufficiently when welding steel boards, coating steel boards or things like that.

3 warning



The arc light is harmful for the eyes and skins.

- Please wear the shade protectors that have the sufficient rate of shading when welding or supervising the welding.
  When choose the luminous intensity of lens or filter plate, consider the usage standard of JIS T8141.
- Wear profit protectors such as the leather shield, leg protectors, leather suits and long sleeves wear for welding to prevent body from the arc light.
- Please equip the shading curtain around the welding site for other people cannot see light of arc.

4 warning

There is a possibility of fire or explosion.

- Do not weld near the high ignited inflammables.
- Remove the inflammables not to reach the spatter with the inflammables.
  If it is impossible, cover the inflammables to use nonflammability covers.
- Do not weld the air light containers and air light pipes, or containers and pipes that have the inflammables inside.
  Keep away welded materials on the hot condition from the inflammables.
- Remove the inflammables at the inside when welding the ceiling, floor and wall.
- Do not weld when the welding wire keeps in touch with a current circuit of the basic materials, except for the edge of welding torch.
- Insulate tightly the junction of the cable. Please connect the basic materials of the cable with the welding spot as near as possible.
- Please install the fire extinguisher near the welding place in case of the accidents.

5 warning

The lack treat of spatter and slag can hurt the eyes or cause the burn.
Eyes can be hurt or burned by high heat from welding.

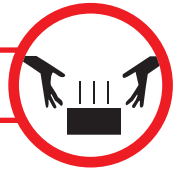
- Please wear the protectors like protect glasses, leather shield for welding, long sleeve wears, leg protectors and leather aprons.
- Do not touch the welding spot until get cold.

6 warning

There is a danger to get harmed in the eyes or face by the wire edge.

- Do not hands off the wire edge part when rip off the wires.
- Do not face the welding torch to the face when watch the suppling status of wires.
- Please wear the glasses or leather suits when treat wires or welding rods.

7 warning



There is a danger to get harmed by dropping while carrying the welding materials.

- Please wear safety shoes when treat and carry the welding materials.
  Be careful not to drop the welding materials on the upper body when carrying them.
- Be careful of the pose when carrying not to cause the lumbago.
  About the wire in the pailpack, use after reading the handling suggestions on the container.
- Please load welding materials not to be dropped or collapsed when keeping and carrying them.

MEMO

BRIEF HISTORY

1969	MAR.	Korea Welding Electrode Co.Ltd. Established.
	JUL.	Technical Collaboration Agreement with Nittetus Electrode Ltd. in Japan.
1970	DEC.	Approved by Korean Register of Shipping (KR)
1971	JUL.	Approved by Lloyd's Register of Shipping.(LR) and france(BV),USA(ABS)
1974	MAY.	Approved by Nippon Kaiji Kyokai (NKK)
1975	JUL.	Approved by Det Norske Veritas and Germanisher Lloyd (DNV)
1978	JUN.	Technical Collaboration Agreement with Tokuden Co,Ltd. in Japan and Alloy Electrode Production.
1980	DEC.	Approved by Country's Register for Stainless Welding Consumables. (ABS, DNV, KR)
1982	JUN.	Approved by Japanese Industrial Standard. (JIS Z3211, Z3212)
1987	FEB.	Welding Technology Institute Authorized by Government.
	JUN.	Quality Control 1st Grade Authorized by Government.
1988	OCT.	F. C. W Factory established in Changwon.
1990	JUL.	Changwon Factory Expanded & F.A. Driven.
1992	DEC.	Total Quality Assurance System Settled Down.
1994	SEP.	Solid Wire for MAG Facilities Expanded.
1995	MAY.	FCW Facilities Expanded.
	OCT.	ISO 9002 Certified.
1996	NOV.	Approved by Japanese Industrial Standard. (JIS Z3313, Z3323 → FCW)
	NOV.	Awarded Prize of Export US$50 Million.
1997	MAY.	Factory Operated in Malaysia. (Kiswel SDN BHD)
1998	FEB.	Foreign Branch Office Established in EU and USA.
1999	JAN.	Company's Name Changed to KISWELL LTD. (Global CI)
	FEB.	Foreign Branch Office Established in China. (Shanghai)

1999	SEP.	QS 9001 & ISO 14001 Certified by Lloyd's Register
	OCT.	FCW Facilities Expanded in Malaysia.
2001	MAY.	Welding Electrode Facility Expanded in Malaysia.
2002	JUL.	The Completion of a New R&D Center Building.
2003	JAN.	The Conversion of U.S.A branch to Corporation and Moved in Atlanta. (KISWEL USA INC)
	MAR.	Foreign Branch Office Established in China. (Dalian)
2004	MAY.	Factory Operated in Dalian China (KISWEL Dalian Ltd.)
2005	FEB.	ISO/TS16949 Certified.
2006	AUG.	Factory Operated in Kentucky. USA. (KISWEL INC.)
2007	FEB.	Foreign Branch Office Established in Dubai. U.A.E
	MAR.	An Exemplary Enterprise Awarded by Government
2008	DEC.	Awarded Export $100 million tower by Government
2009	JUL.	Foreign Branch Office Established in Thailand. (Bangkok)
	AUG.	Foreign Branch Office Established in Vietnam. (Ho Chi Minh)
2010	MAR.	CE Certified.
	MAY.	ASME QSC Certified.
2011	APR.	Factory Operated in Heung Kuk Steel Wire Co.,Ltd
2012	AUG.	POSWELDING established
2014	DEC.	Foreign Branch Office Established in Mexico. (Monterrey)
2016	JUN.	Selected for the World Class 300
2017	OCT.	Awarded Presidential Commendation for Contribution to the Capital Goods Industry
2021	AUG.	Received the grand prize at '2021 Consumer Selected Quality Satisfaction Award'

CONTENTS

WELDING CONSUMABLES

For mild steel and 490MPa high tensile strength steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KCL-10	A5.1 E6010	EN ISO 2560-A E 38 0 C 22 EN ISO 2560-B E 43 10 A	D 7004 E4311	Z 3211 E4310	45
KCL-11	A5.1 E6011	EN ISO 2560-A E 38 2 C 12 EN ISO 2560-B E 43 11 A	D 7004 E4311	Z 3211 E4311	46
K-6012	A5.1 E6012	EN ISO 2560-A E 38 0 R 12 EN ISO 2560-B E 43 12 A	D 7004 E4313	Z 3211 E4312	47
KR-3000	A5.1 E6013	EN ISO 2560-A E 38 0 R 11 EN ISO 2560-B E 43 13 A	D 7004 E4313	Z 3211 E4313	48
KR-3000V	A5.1 E6013	EN ISO 2560-A E 38 0 R 15 EN ISO 2560-B E 43 13 A	D 7004 E4313	Z 3211 E4313	49
KI-101LF	A5.1 E6019	EN ISO 2560-A E 38 2 RA 12 EN ISO 2560-B E 43 19 A U	D 7004 E4301	Z 3211 E4319	50
K-6022	A5.1 E6022	EN ISO 2560-A E 38 0 A 23	-	-	51
KF-300LF	A5.1 E6027	EN ISO 2560-A E 38 0 A 53 EN ISO 2560-B E 43 27 A	D 7004 E4327	Z 3211 E4327	52
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KH-500LF	A5.1 E7016	EN ISO 2560-A E 38 3 B 12 H10 EN ISO 2560-B E 43 16 A U H10	D 7004 E4316	Z 3211 E4316	54
KH-500T	A5.1 E7016	EN ISO 2560-A E 38 0 B 12 H10 EN ISO 2560-B E 43 16 A H10	D 7004 E4316	Z 3211 E4316	55
KH-500W	A5.1 E7016	EN ISO 2560-A E 38 3 B 12 H10 EN ISO 2560-B E 43 16 A H10	D 7004 E4316	Z 3211 E4316	56
KH-500VLF	A5.1 E7048	EN ISO 2560-A E 38 0 B 35 H10 EN ISO 2560-B E 43 16 A H10	D 7004 E4316	Z 3211 E4948	57
K-7014	A5.1 E7014	EN ISO 2560-A E 42 A RR 32 EN ISO 2560-B E 49 14 A	-	Z 3211 E4914	58
K-7024	A5.1 E7024	EN ISO 2560-A E 42 A RR 53 EN ISO 2560-B E 49 24 A	D 7004 E4324	Z 3211 E4924	59
K-7024N	A5.1 E7024-1	EN ISO 2560-A E 42 0 RR 53 EN ISO 2560-B E 49 24 A	D 7004 E4324	Z 3211 E4924-1	60
K-7010G	A5.5 E7010-G	EN ISO 2560-A E 42 0 C 22 EN ISO 2560-B E 49 10-G A	-	Z 3211 E4910-G	61
K-7010P1	A5.5 E7010-P1	EN ISO 2560-A E 42 2 C 25 EN ISO 2560-B E 49 10-P1 A	-	Z 3211 E4910-P1	62
KK-50LF	A5.1 E7016	EN ISO 2560-A E 42 3 B 12 H10 EN ISO 2560-B E 49 16 A U H10	D 7006 E5016	Z 3211 E4916	63
K-7016HR	A5.1 E7016 H4R	EN ISO 2560-A E 42 3 B 12 H5 EN ISO 2560-B E 49 16 A U H5	D 7006 E5016	Z 3211 E4916 H5	64
K-7018	A5.1 E7018	EN ISO 2560-A E 42 3 B 32 H10 EN ISO 2560-B E 49 18 A U H10	D 7006 E5016	Z 3211 E4918	65
K-7018(Pipeweld)	A5.1 E7018 H4	EN ISO 2560-A E 42 3 B 32 H5 EN ISO 2560-B E 49 18 A U H5	D 7006 E5016	Z3211 E4918 H5	66
K-7018HR	A5.1 E7018 H4R	EN ISO 2560-A E 42 3 B 32 H5 EN ISO 2560-B E 49 18 A U H5	D 7006 E5016	Z 3211 E4918 H5	67
K-7018N	A5.1 E7018-1	EN ISO 2560-A E 42 4 B 32 H10 EN ISO 2560-B E 49 18-1 A U H10	-	Z 3211 E4918-1	68

Covered Electrodes

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
K-7018NP	A5.1 E7018-1 H4R	EN ISO 2560-A E 42 4 B 42 H5 EN ISO 2560-B E 49 18-1 A U H5	-	Z 3211 E4918-1 H5	69
K-7028LF	A5.1 E7028	EN ISO 2560-A E 42 0 B 52 EN ISO 2560-B E 49 28 A	D 7006 E5026	Z 3211 E4928	70

For high tensile strength steel (520~830MPa)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
K-8010G	A5.5 E8010-G	EN ISO 2560-A E 46 0 C 22 EN ISO 2560-B E 55 10-G A	-	Z 3211 E5510-G	71
K-8010P1	A5.5 E8010-P1	EN ISO 2560-A E 46 2 C 25 EN ISO 2560-B E 55 10-P1 A	-	Z 3211 E5510-P1	72
KK-55	A5.5 E8016-G	EN ISO 2560-A E 46 3 B 12 H10 EN ISO 2560-B E 55 16-G A H10	D 7006 E5316	Z 3211 E5516-G	73
K-8018	A5.5 E8018-G	EN ISO 2560-A E 46 3 B 32 H10 EN ISO 2560-B E 55 18-G A H10	D 7006 E5316	Z 3211 E5518-G	74
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KK-70	A5.5 E10016-G	EN 757 E 55 3 Z B 12 H10	D 7006 E7016	Z 3211 E6916-G	76
KK-80	A5.5 E11016-G	EN 757 E 62 0 Z B 12 H10	D 7006 E8016	Z 3211 E7616-G	77
K-9018M	A5.5 E9018-M	EN ISO 2560-A E 50 5 Z B 32 H10	D 7006 E5816	Z 3211 E6218-N3M1	78
K-10018M	A5.5 E10018-M	EN 757 E 55 3 Z B 32 H10	D 7006 E7016	Z 3211 E6918-N3M2	79
K-11018M	A5.5 E11018-M	EN 757 E 62 3 Z B 32 H10	D 7006 E8016	Z 3211 E7618-N4M2	80
K-12018M	A5.5 E12018-M	EN 757 E 69 3 Z B 32 H10	-	Z 3211 E8318-N4C2M2	81
K-8018D1	A5.5 E8018-D1 H4	EN ISO 2560-B E 55 18-3M2 P H5	-	Z 3211 E5518-3M2 P H5	82
K-10018D2	A5.5 E10018-D2 H4	EN 757 E 55 3 Z BT 32 H5	-	Z 3211 E6918-4M2 P H5	83
K-8018D3	A5.5 E8018-D3 H4	EN ISO 2560-B E 55 18-3M3 P H5	-	Z 3211 E5518-3M3 P H5	84

For atmospheric corrosion resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KW-50G	A5.5 E7016-G	EN ISO 2560-A E 42 3 Z B 12 H10 EN ISO 2560-B E 49 16-G A H10	D 7101 DA5016W	Z 3214 E4916-NCC1	85
KW-50V	A5.5 E7016-G	-	D 7101 DA5016G	Z 3214 E4916-CC	86
KW-50WH		-	D 7101 DA5026W	Z 3214 E4928-NCC1	87
KW-60G	A5.5 E8016-G	EN ISO 2560-A E 50 0 Z B 12 EN ISO 2560-B E 55 16-G A	D 7101 DA5816W	Z 3214 E5516-NCC1	88
K-8018W	A5.5 E8018-W2	EN ISO 2560-A E 46 2 Z B 32 H10 EN ISO 2560-B E55 18-NCC1 A U H10	-	Z 3214 E5518-NCC1	89
KA-50G	A5.5 E7016-G	EN ISO 2560-A E 42 0 Z B 12 H10 EN ISO 2560-B E 49 16-G A H10	-	Z 3211 E4916-NC	90

Covered Electrodes

For low temperature service steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KK-50N	A5.5 E7016-G	EN ISO 2560-A E 42 3 Z B 12 H10 EN ISO 2560-B E 49 16-G A H10	D 7023 DL5016-4A0	Z 3211 E4916-G	91
KK-50NN	A5.5 E7016-G	EN ISO 2560-A E 42 5 Z B 12 H10 EN ISO 2560-B E 49 16-G A H10	D 7023 DL5016-6A1	Z 3211 E4916-G	92
K-8016C1	A5.5 E8016-C1	EN ISO 2560-A E 46 6 2Ni B 12 H10 EN ISO 2560-B E 55 16-N5 P U H10	D 7023 DL5016-6P2	Z 3211 E5516-N5 P U	93
K-8018C1	A5.5 E8018-C1	EN ISO 2560-A E 46 6 2Ni B 32 H10 EN ISO 2560-B E 55 18-N5 P U H10	-	Z 3211 E5518-N5 P U	94
K-8016C2	A5.5 E8016-C2	EN ISO 2560-A E 46 6 3Ni B 12 H10 EN ISO 2560-B E 55 16-N7 P H10	D 7023 DL5016-6P3	Z 3211 E5516-N7 P	95
K-8018C2	A5.5 E8018-C2	EN ISO 2560-A E 46 6 3Ni B 32 H10 EN ISO 2560-B E 55 18-N7 P H10	-	Z 3211 E5518-N7 P	96
K-8018C3	A5.5 E8018-C3	EN ISO 2560-A E 46 4 1Ni B 32 H10 EN ISO 2560-B E 55 18-N2 A U H10	-	Z 3211 E5518-N2 U	97
K-7018C3L	A5.5 E7018-C3L H4R	EN ISO 2560-A E 42 3 1Ni B 32 H5 EN ISO 2560-B E 49 18-N2 A H5	-	Z 3211 E4918-N2 H5	98
K-7018G	A5.5 E7018-G H4R	EN ISO 2560-A E 42 5 1Ni B 32 H5 EN ISO 2560-B E 49 18-G A H5	-	Z 3211 E4918-G H5	99
K-8016C4H	A5.5 E8016-C4 H4	EN ISO 2560-A E 46 5 Z B 12 H5 EN ISO 2560-B E 55 16-N3 A U H5	-	Z 3211 E5516-N3 U H5	100

For heat-resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
K-7010A1	A5.5 E7010-A1	EN ISO 3580-B E 49 10-1M3	-	Z 3223 E4910-1M3	101
K-7016A1	A5.5 E7016-A1	EN ISO 3580-A E Mo B 12 H10 EN ISO 3580-B E 49 16-1M3 H10	D 7022 DT1216	Z 3223 E4916-1M3	102
K-7018A1	A5.5 E7018-A1	EN ISO 3580-A E Mo B 32 H10 EN ISO 3580-B E 49 18-1M3 H10	-	Z 3223 E4918-1M3	103
K-8016B1	A5.5 E8016-B1	EN ISO 3580-A E CrMo0.5 B 12 H10 EN ISO 3580-B E 55 16-CM H10	-	Z 3223 E5516-CM	104
K-8016B2	A5.5 E8016-B2	EN ISO 3580-A E CrMo1 B 12 H10 EN ISO 3580-B E 55 16-1CM H10	D 7022 DT2316	Z 3223 E5516-1CM	105
K-8018B2	A5.5 E8018-B2	EN ISO 3580-A E CrMo1 B 32 H10 EN ISO 3580-B E 55 18-1CM H10	D 7022 DT2318	Z 3223 E5518-1CM	106
K-9016B3	A5.5 E9016-B3	EN ISO 3580-A E CrMo2 B 12 H10 EN ISO 3580-B E 62 16-2C1M H10	D 7022 DT2416	Z 3223 E6216-2C1M	107
K-9018B3	A5.5 E9018-B3	EN ISO 3580-A E CrMo2 B 32 H10 EN ISO 3580-B E 62 18-2C1M H10	D 7022 DT2418	Z 3223 E6218-2C1M	108
K-8015B6	A5.5 E8015-B6	EN ISO 3580-A E CrMo5 B 22 H10 EN ISO 3580-B E 55 15-5CM H10	D 7022 DT2516	Z 3223 E5515-5CM	109
K-8016B6	A5.5 E8016-B6	EN ISO 3580-A E CrMo5 B 12 H10 EN ISO 3580-B E 55 16-5CM H10	D 7022 DT2516	Z 3223 E5516-5CM	110
K-8015B8	A5.5 E8015-B8	EN ISO 3580-B BE 62 15-9C1M H10	D 7022 DT2616	Z 3223 E5515-9C1M	111
K-8016B8	A5.5 E8016-B8	EN ISO 3580-B BE 62 16-9C1M H10	D 7022 DT2616	Z 3223 E5516-9C1M	112

Covered Electrodes

For heat-resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
K-9015B9	A5.5 E9015-B91 H4R	EN ISO 3580-A E CrMo91 B 42 H5 EN ISO 3580-B E 62 15-9C1MV H5	-	Z 3223 E6215-9C1MV	113
K-9015B9W	A5.5 E9015-B92 H4R		-	Z 3223 E6215-G	114

For hardfacing

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KM-100	-	EN 14700 E Fe 1	D 7035 DF2A-250-R	Z 3251 DF2A-250-R	115
KM-250	-	EN 14700 E Fe 1	D 7035 DF2A-250-B	Z 3251 DF2A-250-B	116
KM-300R	-	-	D 7035 DF2A-300-R	Z 3251 DF2A-300-R	117
KM-300	-	EN 14700 E Fe 1	D 7035 DF2A-300-B	Z 3251 DF2A-300-B	118
KM-100C	-	EN 14700 E Fe 1	D 7035 DF2A-350-R	Z 3251 DF2A-350-R	119
KM-350	-	-	D 7035 DF2B-350-B	Z 3251 DF2B-350-B	120
KM-350R	-	-	D 7035 DF2A-350-R	Z 3251 DF2B-350-R	121
KM-500	-	-	D 7035 DF2B-450-B	Z 3251 DF2B-450-B	122
KM-700	-	-	D 7035 DF2B-700-B	Z 3251 DF2B-700-B	123
KM-700R	-	-	D 7035 DF3B-700-R	Z 3251 DF3B-700-R	124
KSB-2	-	-	D 7035 DF3B-600-BR	Z 3251 DF3B-600-BR	125
KM-800	-	-	D 7035 DF3C-700-B	Z 3251 DF3C-700-B	126
KM-800D	-	DIN 8555 E 6-UM-60	-	-	127
KM-11Cr	-	-	D 7035 DF4B-500-B	Z 3251 DF4B-500-B	128
KM-900	-	-	D 7035 DFMA-250-B	Z 3251 DFMA-250-B	129
KM-650	-	DIN 8555 E 10-UM-60	-	-	130
KM-680	-	DIN 8555 E10-UM-65	-	-	131
KM-1000	-	-	D 7035 DFWA-700-S	Z 3251 DFWA-700-S	132
KQD-600	-	-	-	-	133
KM-13CrM	-	-	-	-	134
KBH-2	-	-	-	-	135
KOSPEL-600H	-	-	-	-	136
KOSPEL-800R	-	-	-	-	137

For stainless steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KST-307-15	A5.4 E307-15	-	D 7014 E307-15	Z 3221 ES307-15	138
KST-308-15	A5.4 E308-15	EN ISO 3581-A E 19 9 B 22	D 7014 E308-15	Z 3221 ES308-15	139
KST-308	A5.4 E308-16	EN ISO 3581-A E 19 9 R 12	D 7014 E308-16	Z 3221 ES308-16	140
KST-308L-15	A5.4 E308L-15	EN ISO 3581-A E 19 9 L B 22	D 7014 E308L-15	Z 3221 ES308L-15	141
KST-308LB	A5.4 E308L-15	EN ISO 3581-A E 19 9 L B 22	D 7014 E308L-15	Z 3221 ES308L-15	142
KST-308L	A5.4 E308L-16	EN ISO 3581-A E 19 9 L R 12	D 7014 E308L-16	Z 3221 ES308L-16	143
KST-308L-17	A5.4 E308L-17	EN ISO 3581-A E 19 9 L R 12	D 7014 E308L-16	Z 3221 ES308L-17	144
KST-308H	A5.4 E308H-16	EN ISO 3581-A E 19 9 H R 12	-	Z 3221 ES308H-16	145
KST-308H-17	A5.4 E308H-17	EN ISO 3581-A E 19 9 H R 12	-	Z 3221 ES308H-17	146
KST-308Mo	A5.4 E308Mo-16	EN ISO 3581-A E 20 10 3 R 12	D 7014 E308Mo-16	Z 3221 ES308Mo-16	147
KST-309-15	A5.4 E309-15	-	D 7014 E309-15	Z 3221 ES309-15	148
KST-309	A5.4 E309-16	-	D 7014 E309-16	Z 3221 ES309-16	149

Covered Electrodes

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KST-309L-15	A5.4 E309L-15	EN ISO 3581-A E 23 12 L B 22	D 7014 E309L-15	Z 3221 ES309L-15	150
KST-309L	A5.4 E309L-16	EN ISO 3581-A E 23 12 L R 12	D 7014 E309L-16	Z 3221 ES309L-16	151
KST-309L-17	A5.4 E309L-17	EN ISO 3581-A E 23 12 L R 12	D 7014 E309L-16	Z 3221 ES309L-17	152
KST-309Mo-15	A5.4 E309Mo-15	-	D 7014 E309Mo-15	Z 3221 ES309Mo-15	153
KST-309Mo	A5.4 E309Mo-16	-	D 7014 E309Mo-16	Z 3221 ES309Mo-16	154
KST-309LMo	A5.4 E309LMo-16	EN ISO 3581-A E 23 12 2 L R 12	D 7014 E309MoL-16	Z 3221 ES309LMo-16	155
KST-309LMoT	A5.4 E309LMo-17(mod.)	EN ISO 3581-A E 23 12 2 L R 12	-	-	156
KST-309Nb	A5.4 E309Nb-17	EN ISO 3581-A E 23 12 Nb R 12	D 7014 E309Nb-16	Z 3221 ES309Nb-16	157
KST-310	A5.4 E310-16	EN ISO 3581-A E 25 20 R 12	D 7014 E310-16	Z 3221 ES310-16	158
KST-312	A5.4 E312-16	EN ISO 3581-A E 29 9 R 12	D 7014 E312-16	Z 3221 ES312-16	159
TENSILE WELD	-	-	-	-	160
KST-316-15	A5.4 E316-15	EN ISO 3581-A E 19 12 2 B 22	D 7014 E316-15	Z 3221 ES316-15	161
KST-316	A5.4 E316-16	EN ISO 3581-A E 19 12 2 R 12	D 7014 E316-16	Z 3221 ES316-16	162
KST-316L-15	A5.4 E316L-15	EN ISO 3581-A E 19 12 3 L B 22	D 7014 E316L-15	Z 3221 ES316L-15	163
KST-316LB	A5.4 E316L-15	EN ISO 3581-A E 19 12 3 L B 22	D 7014 E316L-15	Z 3221 ES316L-15	164
KST-316L	A5.4 E316L-16	EN ISO 3581-A E 19 12 3 L R 12	D 7014 E316L-16	Z 3221 ES316L-16	165
KST-316L-17	A5.4 E316L-17	EN ISO 3581-A E 19 12 3 L R 12	D 7014 E316L-16	Z 3221 ES316L-17	166
KST-317	A5.4 E317-16	-	D 7014 E317-16	Z 3221 ES317-16	167
KST-317L	A5.4 E317L-16	EN ISO 3581-A E 19 13 4 N L R 12	D 7014 E317L-16	Z 3221 ES317L-16	168
KST-318	A5.4 E318-16	-	D 7014 E318-16	Z 3221 ES318-16	169
KST-347B	A5.4 E347-15	EN ISO 3581-A E 19 9 Nb B 22	D 7014 E347-15	Z 3221 ES347-15	170
KST-347	A5.4 E347-16	EN ISO 3581-A E 19 9 Nb R 12	D 7014 E347-16	Z 3221 ES347-16	171
KST-347-17	A5.4 E347-17	EN ISO 3581-A E 19 9 Nb R 12	D 7014 E347-16	Z 3221 ES347-17	172
KST-347L	-	-	D 7014 E347L-16	Z 3221 ES347L-16	173
KST-410	A5.4 E410-16	EN ISO 3581-A E 13 R 12	D 7014 E410-16	Z 3221 ES410-16	174
KST-410NiMo	A5.4 E410NiMo-16	EN ISO 3581-A E 13 4 R 12	D 7014 E410-16	Z 3221 ES410NiMo-16	175
KST-430	A5.4 E430-16	EN ISO 3581-A E 17 R 12	D 7014 E430-16	Z 3221 ES430-16	176
KST-2209	A5.4 E2209-16	EN ISO 3581-A E 22 9 3 N L R 12	-	Z 3221 ES2209-16	177
KST-2209B	A5.4 E2209-15	EN ISO 3581-A E 22 9 3 N L B 22	-	Z 3221 ES2209-15	178
KST-2594	A5.4 E2594-16	EN ISO 3581-A E 25 9 4 N L R 12	-	-	179

For cast iron

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KL-100	-	-	D 7008 DFCCI	Z 3252 E C FeC-3	180
KCF-50	A5.15 Est	-	-	-	181
KFN-50	A5.15 ENiFe-CI	EN ISO 1071 E C NiFe-CI 1	D 7008 DFCNiFe	Z 3252 E C NiFe-CI	182
KSN-100	A5.15 ENi-CI	EN ISO 1071 E C Ni-CI 1	D 7008 DFCNi	Z 3252 E C Ni-CI	183

For special purpose

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
CUTTING ROD	-	-	-	-	184
GOUGING ROD	-	-	-	-	185

Gas Metal Arc Welding Wires

For mild steel and 490MPa high tensile strength steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KC-25	A5.18 ER70S-3	ISO 14341-A G 42 2 C1 2Si ISO 14341-B G 49A 2 C1 S3	D 7025 YGW14	Z 3312 G 43 A 0 U C 3	189
KC-25M	A5.18 ER70S-3	ISO 14341-A G 42 2 M21 2Si ISO 14341-B G 49A 2 M21 S3	D 7025 YGW16	Z 3312 YGW16	190
KC-35	A5.18 ER70S-3	-	-	-	191
KC-37S	A5.18 ER70S-G	-	-	-	192
KC-26	A5.18 ER70S-G	ISO 14341-A G 46 2 C1 Z G 46 2 M21 Z ISO 14341-B G 49A 2 C1 S11 G 49A 2 M21 S11	D 7025 YGW11	Z 3312 YGW11	193
ZO-26	A5.18 ER70S-G	ISO 14341-A G 46 2 C1 Z G 46 2 M21 Z ISO 14341-B G 49A 2 C1 S11 G 49A 2 M21 S11	D 7025 YGW11	Z 3312 YGW11	194
ZO-50R	A5.18 ER70S-G	ISO 14341-A G 46 2 C1 Z G 46 2 M21 Z ISO 14341-B G 49A 2 C1 S11 G 49A 2 M21 S11	D 7025 YGW11	Z 3312 YGW11	195
KC-27	A5.18 ER70S-G	ISO 14341-A G 46 2 M21 Z ISO 14341-B G 49A 2 M21 S15	D 7025 YGW15	Z 3312 YGW15	196
ZO-27	A5.18 ER70S-G	ISO 14341-A G 46 2 M21 Z ISO 14341-B G 49A 2 M21 S15	D 7025 YGW15	Z 3312 YGW15	197
KC-28	A5.18 ER70S-6	ISO 14341-A G 42 3 C1 3Si1 G 42 3 M21 3Si1 ISO 14341-B G 49A 3 C1 S6 G 49A 3 M21 S6	D 7025 YGW12	Z 3312 YGW12	198
ZO-28	A5.18 ER70S-6	ISO 14341-A G 42 3 C1 3Si1 G 42 3 M21 3Si1 ISO 14341-B G 49A 3 C1 S6 G 49A 3 M21 S6	D 7025 YGW12	Z 3312 YGW12	199
KC-29	A5.18 ER70S-6	ISO 14341-A G 46 4 C1 4Si1 G 46 4 M21 4Si1 ISO 14341-B G 49A 4U C1 S6 G 49A 4U M21 S6	-	Z 3312 G 55 A 4 U C 6	200
ZO-29	A5.18 ER70S-6	ISO 14341-A G 46 4 C1 4Si1 G 46 4 M21 4Si1 ISO 14341-B G 49A 4U C1 S6 G 49A 4U M21 S6	-	Z 3312 G 55 A 4 U C 6	201
KC-70S2	A5.18 ER70S-2	ISO 14341-A G 46 3 C1 2Ti G 46 3 M21 2Ti ISO 14341-B G 49A 3 C1 S2 G 49A 3 M21 S2	-	Z 3312 G 49 A 3 C 2	202

Gas Metal Arc Welding Wires

For high tensile strength steel (520~830MPa)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
ZO-55	A5.18 ER70S-G	ISO 14341-A G 50 0 C1 Z ISO 14341-B G 55A 0U C1 S18	-	Z 3312 YGW18	203
ZO-55R	A5.18 ER70S-G	-	-	Z 3312 YGW18	204
ZO-60	A5.28 ER80S-G	ISO 16834-A G 55 2 C1 Z ISO 16834-B G 62A 2U C1 3M1T	D 7025 YGW21	Z 3312 G 59JA 1 UC 3M1T	205
ZO-90	A5.28 ER90S-G	ISO 16834-A G 62 3 M21 Z ISO 16834-B G 69A 3U M21 3M1T	-	Z 3312 G 62 A 3 M 3M1T	206
ZH-90	A5.28 ER90S-G	ISO 16834-A G 62 6 M21 Mn3Ni1Mo ISO 16834-B G 69A 6U M21 N2M1T	-	Z 3312 G 62 A 6 U M N2M1T	207
ZH-100	A5.28 ER100S-1/G	ISO 16834-A G 62 2 M21 Z Mn3Ni1.5Mo G 62 2 M13 Z Mn3Ni1.5Mo ISO 16834-B G 69A 2U M21 N4CM21T G 69A 2U M13 N4CM21T	-	Z 3312 G 69 A 2 M N4CM21T	208
ZH-100D	A5.28 ER100S-1/G	ISO 16834-A G 62 2 M21 Z Mn3Ni1.5Mo G 62 2 M13 Z Mn3Ni1.5Mo ISO 16834-B G 69A 2U M21 N4CM21T G 69A 2U M13 N4CM21T	-	Z 3312 G 69 A 2 M N4CM21T	209
ZO-110	A5.28 ER110S-G	ISO 16834-A G 69 4 M21 Mn3Ni1CrMo	-	-	210
ZH-120	A5.28 ER120S-G	ISO 16834-A G 69 6 M21 Z ISO 16834-B G 83A 6U M21 G	-	Z 3312 G 78 A 6 M 0	211
ZO-120	A5.28 ER120S-G	ISO 16834-A G 79 4 M21 Mn4Ni2CrMo	-	-	212

For heat-resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KC-80D2	A5.28 ER80S-D2	-	D 7120 YGM-C	Z 3317 YGM-C	213
KC-81CMA	A5.28 ER80S-G	-	D 7120 YG1CM-A	Z 3317 G 55M-1CM3	214
KC-80SB2	A5.28 ER80S-B2	ISO 21952-B G 55 M13 1CM	D 7120 YG1CM-G	Z 3317 G 55A-1CM	215
KC-80SB2MnV	A5.28 ER80S-G	-	-	-	216
KC-90SB3	A5.28 ER90S-B3	ISO 21952-B G 62 M13 2C1M	D 7120 YG2CM-G	Z 3317 G 62A-2C1M	217
KC-90SB9	A5.28 ER90S-B9	ISO 21952-A G CrMo91 ISO 21952-B G 62 M12 9C1MV	-	-	218
KC-90SB9W	A5.28 ER90S-B9(mod.)	-	-	-	219

For low temperature service steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KC-80SNi1	A5.28 ER80S-Ni1	-	-	-	220
KC-80SNi2	A5.28 ER80S-Ni2	ISO 14341-A G 46 6 M13 2Ni2	-	-	221
KC-80SNi3	A5.28 ER80S-Ni3	-	-	-	222

Flux Cored Arc Welding Wires

Gas shielded FCW for 420~490MPa high tensile strength steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-61T	A5.20 E61T-G	EN ISO 17632-B T43 Z T1-1M21A	Z 3313 T43 0T1-1MA H10	232
	A5.36 E61T1-M21AY-G			
K-70T	A5.20 E70T-1C/-1M	EN ISO 17632-A T42 0 R C1 3 H10	Z 3313 T49J 0T1-0C/MA-U H10	233
		T46 0 R M21 3 H10		
	A5.36 E70T1-C1/M21A0-CS1-H8	EN ISO 17632-B T49 0T1-0C1(M21)A-U H10		
K-71T	A5.20 E71T-1C	EN ISO 17632-A T42 0 P C1 1 H10	Z 3313 T49J 0T1-1CA-U H10	234
	A5.36 E71T1-C1A0-CS1-H8	EN ISO 17632-B T49 0T1-1C1A-U H10		
K-71TLF	A5.20 E71T-1C/-1M	EN ISO 17632-A T42 2 P C1 1 H5	Z 3313 T49 2T1-1C/MA-U H10	235
	A5.36 E71T1-C1A2- CS1-H8	T46 2 P M21 1 H10		
	E71T1-M21A2- CS1-H8	EN ISO 17632-B T49 2T1-1C1A-U H5		
		T49 2T1-1M21A-U H10		
K-71TM	A5.20 E71T-1C/-1M	EN ISO 17632-A T42 0 R C1 1 H5	Z 3313 T49 2T1-1 C/MA-U H10	236
	A5.36 E71T1-C1/M21A2-CS1-H8	T46 0 R M21 1 H10		
		EN ISO 17632-B T49 2T1-1C1A-U H5		
		T49 2T1-1M21A-U H10		
K-71TMJ	A5.20 E71T-1MJ	EN ISO 17632-A T46 4 P M21 1 H5	Z 3313 T49 4T1-1MA-U H5	237
	A5.36 E71T1-M21A4-CS1-H4	EN ISO 17632-B T49 4T1-1M21A-U H5		
K-71T Plus	A5.20 E71T-9C/-9M	EN ISO 17632-A T42 2 P C1/M21 1 H10	Z 3313 T49 3 T1-1C/MA H10	238
	A5.36 E71T1-C1/M21A2-CS1-H8	EN ISO 17632-B T49 3T1-1C1(M21)A H10		
K-70TB	A5.20 E70T-5M	EN ISO 17632-A T46 2 B M21 3 H5	Z 3313 T49 2 T5-0MA-U H5	239
	A5.36 E70T5-M21A2-CS1-H4	EN ISO 17632-B T49 3T5-0M21A H5		
K-71TB	A5.20 E71T-5C/-5M	EN ISO 17632-A T42 2 B C1 1 H5	Z 3313 T49 2T5-1 C/MA-U H5	240
	A5.36 E71T5-C1/M21A2-CS1-H8	T46 2 B M21 1 H5		
		EN ISO 17632-B T49 3 T5-1C1(M21)A H5		
K-70ST	A5.20 E70T-9C	EN ISO 17632-A T42 2 R C1 3 H10	Z 3313 T49 2T1-0CA-U H10	241
	A5.36 E70T1-C1A2-CS1-H8	EN ISO 17632-B T49 3T1-0C1A-U H10		
KX-100	A5.18 E70C-3C	EN ISO 17632-A T42 0 M C1 3 H5	Z 3313 T49J 0 T15-0CA-U H5	242
	A5.36 E70T15-C1A0-CS1-H4	EN ISO 17632-B T49 2 T15-0C1A H5		
KX-200	A5.20 E70T-1C	EN ISO 17632-A T42 0 R C1 3 H10	Z 3313 T49J 0 T1-0CA-U H10	243
	A5.36 E70T1-C1A0-CS1-H8	EN ISO 17632-B T49 0T1-0C1A-U H10		
KX-200H	A5.20 E70T-9C	EN ISO 17632-A T42 2 R C1 3 H10	Z 3313 T49 2 T1-0CA-U H10	244
	A5.36 E70T1-C1A2-CS1-H8	EN ISO 17632-B T49 2T1-0C1A-U H10		
KX-200E	A5.20 E70T-9C	EN ISO 17632-A T42 4 R C1 3 H10	Z 3313 T49 4 T1-0CA-U H10	245
	A5.36 E70T1-C1A4-CS1-H8	EN ISO 17632-B T49 4 T1-0C1A-U H10		
KX-70CM	A5.18 E70C-3M	EN ISO 17632-A T46 0 M M21 3 H5	Z 3313 T49 2 T15-0MA H5	246
	A5.36 E70T15-M21A0-CS1-H4	EN ISO 17632-B T49 2 T15-0M21A H5		
KX-706M	A5.18 E70C-6M	EN ISO 17632-A T46 2 M M21 3 H5	Z 3313 T49 3 T15-0MA H5	247
	A5.36 E70T15-M21A2-CS1-H4	EN ISO 17632-B T49 3T15-0M21A H5		
KX-706T	A5.18 E70C-6M	EN ISO 17632-A T46 2 M M21 1 H5	Z 3313 T49 3 T15-1MA H5	248
	A5.36 E71T15-M21A2-CS1-H4	EN ISO 17632-B T49 3 T15-1M21A H5		
KX-706MU	A5.18 E70C-6M	EN ISO 17632-A T46 4 M M21 3 H5	Z 3313 T49 4 T15-0MA U H5	249
	A5.36 E70T15-M21A4-CS1-H4	EN ISO 17632-B T49 4 T15-0M21A-U H5		

Flux Cored Arc Welding Wires

Gas shielded FCW for 520~830MPa high tensile strength steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-55T	A5.29 E81T1-GC	EN ISO 17632-A T46 0 P C1 1 H10	Z 3313 T55 0 T1-1 C A-U H10	250
	A5.36 E81T1-C1A0-CS1-H8	EN ISO 17632-B T55 2 T1-1C1 A H10		
KX-55	A5.29 E80T1-GC	EN ISO 17632-A T46 0 P C1 3 H10	Z 3313 T55 0 T1-0 C A-U H10	251
	A5.36 E80T1-C1A0-CS1-H8	EN ISO 17632-B T55 2 T15-0C1 A H10		
K-81T	A5.29 E81T1-Ni1C	EN ISO 17632-A T50 3 1Ni P C1 1 H5	Z 3313 T57 3 T1-1CAP-N2-U H5	252
	A5.36 E81T1-C1A2-Ni1-H4	EN ISO 17632-B T55 3 T1-1C1 A-N2 H5		
K-81T(Nace)	A5.29 E81T1-Ni1C	EN ISO 17632-A T50 5 1Ni P C1 1 H5	Z 3313 T57 4 T1-1 C AP-N2-U H5	253
	A5.36 E81T1-C1A/P4-Ni1-H4	EN ISO 17632-B T55 5 T1-1C1 A-N2 H5		
K-81TM	A5.29 E81T1-Ni1M	EN ISO 17632-A T50 4 1Ni P M21 1 H10	Z 3313 T57 4 T1-1 M A-N2-U H10	254
	A5.36 E81T1-M21A4-Ni1-H8	EN ISO 17632-B T55 4 T1-1M21 A-N2 H10		
K-80ST	A5.29 E80T1-Ni1C	EN ISO 17632-A T50 3 1Ni R C1 4 H10	Z 3313 T57 3 T1-0CA-N2 H10	255
	A5.36 E80T1-C1A2-Ni1-H8	EN ISO 17632-B T55 3 T15-0C1A-N2 H10		
KX-300	A5.29 E80T1-Ni1C	EN ISO 17632-A T50 3 1Ni P C1 3 H10	Z 3313 T57 3 T1-0 C A-N2 H10	256
	A5.36 E80T1-C1A2-Ni1-H8	EN ISO 17632-B T55 3 T15-0C1 A-N2 H10		
K-82T	A5.29 E81T1-Ni2C	EN ISO 17632-A T50 4 2Ni P C1 1 H5	Z 3313 T57 4 T1-1CA-N5-U H5	257
	A5.36 E81T1-C1A4-Ni2-H4	EN ISO 17632-B T55 4 T1-1C1A-N5-U H5		
K-82TM	A5.29 E81T1-Ni2M	EN ISO 17632-A T50 4 2Ni P M21 1 H10	Z 3313 T57 4 T1-1MA-N5-U H10	258
	A5.36 E81T1-M21A4-Ni2-H8	EN ISO 17632-B T55 4 T1-1M21 A-N5-U H10		
KX-80D2M	A5.28 E80C-GM	-	-	259
	A5.36 E80T15-M21A2-G			
K-90T	A5.29 E90T1-K2C	EN ISO 18276-B T62 4 T1-0C1 A-N3M1-U H5	-	260
	A5.36 E90T1-C1A4-K2			
K-91T	A5.29 E91T1-G	EN ISO 17632-A T55 4 Z Mn1NiMo R C1 1/T	Z 3313 T62 4T1-1CAP-N2	261
	A5.36 E91T1-C1A/P4-Ni1			
K-92T	A5.29 E91T1-Ni2CJ	EN ISO 18276-B T62 4 T1-1C1A-N4M1-U H5	-	262
	A5.36 E91T1-C1A4-Ni2 H4			
K-100TK3	A5.29 E101T1-K3C	EN ISO 18276-A T62 2 Mn2NiMo R C1 1 H5	Z 3313 T69 2T1-1 C A-N3M2 H5	263
	A5.36 E101T1-C1A0-K3-H4	EN ISO 18276-B T69 2 T1-1C1 A-N3M2 H5		
K-100T5D2	A5.29 E100T5-D2M	EN ISO 18276-B T62 4 T5-0M21 P-G	-	264
	A5.36 E100T5-M21P4-D2-H4			
K-110TK3	A5.29 E111T1-K3C	EN ISO 18276-A T69 2 Mn2NiMo P C1 1 H5	Z 3313 T76 2T1-1CA-N4M2 H5	265
	A5.36 E111T1-C1A4-K3-H4	EN ISO 18276-B T76 2 T1-1C1A-N3M2 H5		
K-110TK3M	A5.29 E111T1-K3M	EN ISO 18276-A T69 2 Mn2NiMo P M21 1 H5	Z 3313 T76 2T1-1MA-N4M2 H5	266
	A5.36 E111T1-M21A4-K3-H4	EN ISO 18276-B T76 2 T1-1M21A-N3M2 H5		
K-115TK4	A5.29 E110T5-K4C	EN ISO 18276-A T69 5 Mn2NiCrMo B C1 4 H5	Z 3313 T76 5T5-0CA-N4C1M2 H5	267
	A5.36 E110T5-C1A6-K4-H4	EN ISO 18276-B T76 5 T5-0C1A-N4C1M2 H5		
K-115TK4M	A5.29 E110T5-K4M	EN ISO 18276-A T69 5 Mn2NiCrMo B M21 4	Z 3313 T76 5T5-0MA-N4C1M2 H5	268
	A5.36 E110T5-M21A6-K4-H4	EN ISO 18276-B T76 5 T5-0M21A-N4C1M2		
KX-800	A5.29 E120T1-GC	EN ISO 18276-B T83 4 T1-0C1 A N4M2	-	269
	A5.36 E120T1-C1A4-G			
K-120TG	A5.29 E121T1-G	EN ISO 18276-B T83 4 T1 1 C1 A-N4M2	-	270
	A5.36 E121T1-C1A4-G			
K-145TM	A5.36 E130T5-M21AY-G-H4	EN ISO 18276-A T89 A Mn2Ni1CrMo B M21 3 H5	-	271

Flux Cored Arc Welding Wires

Self-shielded FCW for 490MPa high tensile strength steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-NGS4	A5.20 E70T-4	EN ISO 17632-A T42 Z Y NO 3	Z 3313 T49 T4-0 N A	272
	A5.36 E70T4-AZ-CS3	EN ISO 17632-B T49 Z T4-0NOA		
K-NGS10	A5.20 E70T-10	EN ISO 17632-A T42 Z V NO 3	Z 3313 T49 T10-0 N S	273
	A5.36 E70T10S-AZ-CS3	EN ISO 17632-B T49 Z T10-1NOS		
K-NGS11	A5.20 E71T-11	EN ISO 17632-A T42 Z Y NO 1	Z 3313 T49 T7-1 N A	274
	A5.36 E71T11-AZ-CS3	EN ISO 17632-B T49 Z T11-1NOA		
K-NGS	A5.20 E71T-GS	EN ISO 17632-A T42 Z V NO 1	Z 3313 T49 TG-1 N S	275
	A5.36 E71T14S-AZ-CS3	EN ISO 17632-B T49 Z TG-1NOS		
K-NGS8	A5.20 E71T-8	EN ISO 17632-B T49 3 T8-1NOA	Z 3313 T49 3 T7-1 N A	276
	A5.36 E71T8-A2-CS3			
K-NGSNi1	A5.29 E71T8-Ni1	EN ISO 17632-B T49 3 T8-1NOA-N2	Z 3313 T49 3 TG-1NA-N2	277
	A5.36 E71T8-A2-Ni1			

Electrogas welding(EGW) FCW for 490MPa high tensile strength steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-EG2 (3Y)	A5.26 EG70T-2	-	Z 3319 YFEG-22C	278
K-EG3 (5Y)	A5.26 EG82T-G	-	Z 3319 YFEG-20G	278
K-ES2 (2Y, Single) (Non gas type)	A5.26 EG72T-1	-	-	278

Gas shielded FCW for low temperature service steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-71UT	A5.20 E71T-9CJ H4	EN ISO 17632-A T42 4 P C1 1 H5	Z 3313 T49 4 T1-1 C A-U H5	280
	A5.36 E71T12-C1A4-CS1-H4	EN ISO 17632-B T49 4 T1-1C1 A-U H5		
K-71UTM	A5.20 E71T-9MJ	EN ISO 17632-A T42 4 P M21 1	Z 3313 T49 4 T1-1M A-U	281
	A5.36 E71T12-M21A4-CS1	EN ISO 17632-B T49 4 T1-1M21 A-U		
K-71TSR	A5.20 E71T-12CJ H4	EN ISO 17632-A T42 4 P C1 1 H5	Z 3313 T49 4 T1-1C AP-N1-U H5	282
	A5.36 E71T12-C1A/P4-CS2-H4	EN ISO 17632-B T49 4 T1-1C1 AP-N1-U H5		
K-71TSRM	A5.20 E71T-12MJ H8	EN ISO 17632-A T42 4 P M21 1 H10	Z 3313 T49 4 T1-1 M AP-N1-U H10	283
	A5.36 E71T12-M21A/P4-CS2-H8	EN ISO 17632-B T49 4 T1-1M21 AP-N1-U H10		
K-71TP	A5.20 E71T-12C/12M H4	EN ISO 17632-A T42 3 P C1 1 H5	Z 3313 T49 3 T1-1C/M A H10	284
	A5.36 E71T12-C1/M21A2-CS2-H4	T42 3 P M21 1 H10		
		EN ISO 17632-B T49 3 T1-1 C1 A H5		
		T49 3 T1-1 M21 A H10		
K-71TNi2	A5.29 E71T1-GC	EN ISO 17632-A T42 6 2Ni P C1 1 H5	Z 3313 T49 6 T1-1 C A-N5 H5	285
	A5.36 E71T12-C1A8-G-H4	EN ISO 17632-B T49 6 T1-1C1 A-N5 H5		
K-80TK2	A5.29 E80T1-K2C H4	EN ISO 17632-A T50 6 1.5Ni M C1 4 H5	Z 3313 T55 6 T1-0C A-N3-U H5	286
	A5.36 E80T1-C1A8-K2-H4	EN ISO 17632-B T55 6 T1-0C1 A-N3-U H5		
K-81TK2	A5.29 E81T1-K2C H4	EN ISO 17632-A T50 6 1.5Ni P C1 1 H5	Z 3313 T55 6 T1-1C A-N3-U H5	287
	A5.36 E81T1-C1A8-K2-H4	EN ISO 17632-B T55 6 T1-1C1 A-N3-U H5		

Flux Cored Arc Welding Wires

Brand name	Classifications			Page
	AWS	EN	JIS	
K-81TK2M	A5.29 E81T1-K2M	EN ISO 17632-A T50 6 1.5Ni P M21 1 H5	Z 3313 T55 6 T1-1M A-N3-U H5	288
	A5.36 E81T1-M21A8-K2	EN ISO 17632-B T55 6 T1-1M21 A-N3-U H5		
K-81TSR	A5.29 E81T1-K2C H4	EN ISO 17632-A T50 6 1.5Ni P C1 1 H5	Z 3313 T55 6 T1-1C AP-N3-U H5	289
	A5.36 E81T1-C1G8-K2-H4	EN ISO 17632-B T55 6 T1-1C1 AP-N3-U H5		
K-81TK2 Plus	A5.29 E81T1-K2C H4	EN ISO 17632-A T50 6 1.5Ni P C1 1 H5	Z 3313 T55 6 T1-1C A-N3-U H5	290
	A5.36 E81T1-C1A8-K2-H4	EN ISO 17632-B T55 6 T1-1C1 A-N3-U H5		
K-85TNi3M	A5.29 E80T5 Ni3M H4	EN ISO 17632-A T50 7 3Ni B M21 3 H5	Z 3313 T55 7 T4-0 M21 P-N7-U H5	291
	A5.36 E80T5 M21 P 10 Ni3 H4	EN ISO 17632-B T55 7 T4-0 M21 P N7-U H5		
K-91TK2	A5.29 E91T1-K2C H4	EN ISO 18276-A T55 4 Mn 1.5Ni P C1 1 H5	Z 3313 T62 4 T1-1CA-N3-U H5	292
	A5.36 E91T1-C1A4-K2-H4	EN ISO 18276-B T62 4 T1-1 C1 A-N3M1-U H5		
K-91TSR	A5.29 E91T1-Ni2CJ H4	EN ISO 18276-B T62 5 T1-1 C1 AP-N4M21 H5	Z 3313 T62 5 T1-1C AP-N5 H5	293
	A5.36 E91T1-C1A6-Ni2-H4			

Gas shielded FCW for corrosion resisting steel against sulfic acid

Brand name	Classifications			Page
	AWS	EN	JIS	
K-71TS	A5.36 E71T1-C1A0-CS1 H8	EN ISO 17632-A T42 0 P C1 1	Z 3313 T49 0 T1-1CA	294
		EN ISO 17632-B T49 0 T1-1C1A-U		
K-71TSS	A5.36 E71T1-C1A0-CS1 H8	EN ISO 17632-A T42 0 P C1 1	Z 3313 T49J 0 T1-1CA-U H5	295
		EN ISO 17632-B T49 0 T1-1C1A-U		

Gas shielded FCW for heat resisting steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-81TA1	A5.29 E81T1-A1C	EN ISO 17634-A T (Mo) P C1 1	Z 3318 T55T1-1C-2M3	296
	A5.36 E81T1-C1PZ-A1	EN ISO 17634-B T55T1-1C1-2M3		
K-81TB2	A5.29 E81T1-B2C	EN ISO 17634-A T (CrMo 1) P C1 1	Z 3318 T55T1-1C-1CM	297
	A5.36 E81T1-C1PZ-B2	EN ISO 17634-B T55T1-1C1-1CM		
K-81TB2S	A5.29 E81T1-B2C	EN ISO 17634-A T(CrMo 1) P C1 1	Z 3318 T55T1-1C-1CM	298
	A5.36 E81T1-C1P0-B2	EN ISO 17634-B T55T1-1C1-1CM		
K-81TB2SM	A5.29 E81T1-B2M	EN ISO 17634-A T (CrMo 1) P M21 1	Z 3318 T55T1-1M-1CM	299
	A5.36 E81T1-M21P0-B2	EN ISO 17634-B T55T1-1M21-1CM		
K-81TB2L	A5.29 E81T1-B2CL	EN ISO 17634-A T (CrMo 1L) P C1 1	Z 3318 T55T1-1C-1CML	300
	A5.36 E81T1-C1PZ-B2L	EN ISO 17634-B T55T1-1C1-1CML		
K-81TB6	A5.29 E81T1-B6M	EN ISO 17634-A T (CrMo 5) P M21 1	Z 3318 T55T1-1M-5CM	301
	A5.36 E81T1-M21PZ-B6	EN ISO 17634-B T55T1-1M21-5CM		
K-91TB3	A5.29 E91T1-B3C	EN ISO 17634-A T (CrMo 2) P C1 1	Z 3318 T62T1-1C-2C1M	302
	A5.36 E91T1-C1PZ-B3	EN ISO 17634-B T62T1-1C1-2C1M		
K-91TB3SM	A5.29 E91T1-B3M	EN ISO 17634-A T (CrMo 2) P M21 1	Z 3318 T62T1-1M-2C1M	303
	A5.36 E91T1-M21P0-B3	EN ISO 17634-B T62T1-1M21-2C1M		
K-91TB3L	A5.29 E91T1-B3LC	EN ISO 17634-A T (CrMo 2L) P C1 1	Z 3318 T62T1-1C-2C1ML	304
	A5.36 E91T1-C1PZ-B3L	EN ISO 17634-B T62T1-1C1-2C1ML		

Flux Cored Arc Welding Wires

Gas shielded FCW for heat resisting steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-91TB3LS	A5.29 E91T1-G A5.36 E91T1-C1PZ-G	- -	-	305
K-91TB9	A5.29 E91T1-B9M A5.36 E91T1-M21PZ-B9	EN ISO 17634-B T69T1-1M21-9C1MV	Z 3318 T69T1-1M-9C1MV	306
K-101TB9	A5.29 E91T1-B9M A5.36 E101T1-M21PZ-B9	EN ISO 17634-B T69T1-1M21-9C1MV	Z 3318 T69T1-1M-9C1MV	307

Gas shielded FCW for atmospheric corrosion resisting steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-71TW	A5.29 E81T1-W2C A5.36 E71T1-C1A2-W2	EN ISO 17632-B T49 3T1-1C1A-NCC1	Z 3320 T49 3T1-1CA-NCC1	308
K-81TW	A5.29 E81T1-W2C A5.36 E81T1-C1A2-W2	EN ISO 17632-B T55 3T1-1C1A-NCC1	Z 3320 T55 3T1-1CA-NCC1	309

Gas shielded FCW for hardfacing

Brand name	Classifications			Page
	AWS	EN	JIS	
K-250HT	-	EN ISO 14700 T Fe1	Z 3326 YF2A-C-250	310
K-300HT	-	EN ISO 14700 T Fe1	Z 3326 YF2A-C-300	311
K-350HT	-	EN ISO 14700 T Fe1	Z 3326 YF2A-C-350	312
K-450HT	-	EN ISO 14700 T Fe1	Z 3326 YF2A-C-450	313
K-500HT	-	-	Z 3326 YF3B-C-500	314
K-600HT	-	-	Z 3326 YF3B-C-600	315
K-700HT	-	-	-	316
K-800HT	-	-	-	317
K-CXA-40HT	-	EN ISO 14700 T Fe7	Z 3326 YF4A-G-350	318
K-CXA-41HT	-	EN ISO 14700 T Fe7	Z 3326 YF4A-G-350	319
K-45CT	-	-	-	320
K-30RT	-	-	-	321
K-40RT	-	-	-	321
K-58RT	-	-	-	321
K-63RT	-	-	-	321
K-65RT	-	-	-	321
K-13CrLT	-	-	-	321
K-13CrHT	-	-	-	321
K-13CrNiHT	-	-	-	321
K-15CRHT	-	-	-	321
K-430 O	-	-	-	321
K-414 N	-	-	-	321
K-HCRHT	-	-	-	321
KX-CRHT	-	-	-	321

Flux Cored Arc Welding Wires

Brand name	Classifications			Page
	AWS	EN	JIS	
K-CCHT	-	-	-	321
K-MCHT	-	-	-	321

Gas shielded stainless FCW for stainless steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-308T	A5.22 E308T1-1/4	EN ISO 17633-B TS 308-F C1/M21 1	Z 3323 TS308-FB1	323
K-308LT	A5.22 E308LT1-1/4	EN ISO 17633-A T 19 9 L P C1/M21 1 EN ISO 17633-B TS 308L-F C1/M21 1	Z 3323 TS308L-FB1	324
K-308LB	A5.22 E308LT1-1/4	EN ISO 17633-A T 19 9 L P C1/M21 1 EN ISO 17633-B TS 308L-F C1/M21 1	Z 3323 TS308L-BiF-FB1	325
K-308LS	A5.22 E308LT1-1	EN ISO 17633-A T 19 9 L P C1 1 EN ISO 17633-B TS 308L-F C1 1	Z 3323 TS308L-FC1	326
K-308LF	A5.22 E308LT0-1/4	EN ISO 17633-A T 19 9 L R C1/M21 3 EN ISO 17633-B TS 308L-F C1/M21 0	Z 3323 TS308L-FB0	327
K-308HT	A5.22 E308HT1-1/4	EN ISO 17633-B TS 308H-F C1/M21 1	Z 3323 TS308H-FB1	328
K-308HB	A5.22 E308HT1-1/4	EN ISO 17633-A T 19 9 P C1/M21 1 EN ISO 17633-B TS 308H-F C1/M21 1	Z 3323 TS308H-BiF-FB1	329
K-NGS308L	A5.22 E308LT0-3	-	-	330
K-309T	A5.22 E309T1-1/4	EN ISO 17633-B TS 309-F C1/M21 1	Z 3323 TS309-FB1	331
K-309LT	A5.22 E309LT1-1/4	EN ISO 17633-A T 23 12 L P C1/M21 1 EN ISO 17633-B TS 309L-F C1/M21 1	Z 3323 TS309L-FB1	332
K-309LF	A5.22 E309LT0-1/4	EN ISO 17633-A T 23 12 L R C1/M21 3 EN ISO 17633-B TS 309L-F C1/M21 0	Z 3323 TS309L-FB0	333
K-309HT	A5.22 E309HT1-1	-	-	334
K-309LMT	A5.22 EC309L	EN ISO 17633-B TS 309LM M13 0	Z 3323 TS309L-MA0	335
K-309LMTS	A5.22 EC309L	EN ISO 17633-B TS 309LM M13 0	Z 3323 TS309L-MA0	336
K-309MoLT	A5.22 E309LMoT1-1	EN ISO 17633-A T 23 12 2 L P C1 1 EN ISO 17633-B TS 309LMo-F C1 1	Z 3323 TS309LMo-FC1	337
K-309MoLF	A5.22 E309LMoT0-1/4	EN ISO 17633-A T 23 12 2 L R C1/M21 3 EN ISO 17633-B TS 309LMo-F C1/M21 0	Z 3323 TS309LMo-FB0	338
K-312T	A5.22 E312T1-1	EN ISO 17633-A T 29 9 P C1 1 EN ISO 17633-B TS 312-F C1 1	Z 3323 TS312-FC1	339
K-316LT	A5.22 E316LT1-1/4	EN ISO 17633-A T 19 12 3 L P C1/M21 1 EN ISO 17633-B TS 316L-F C1/M21 1	Z 3323 TS316L-FB1	340
K-316LF	A5.22 E316LT0-1/4	EN ISO 17633-A T 19 12 3 L R C1/M21 3 EN ISO 17633-B TS 316L-F C1/M21 0	Z 3323 TS316L-FB0	341
K-316LS	A5.22 E316LT1-1	EN ISO 17633-B TS 316L-F C1 1	Z 3323 TS316L-FC1	342
K-317LT	A5.22 E317LT1-1	EN ISO 17633-B TS 317L-F C1 1	Z 3323 TS317L-FC1	343
K-347T	A5.22 E347T1-1	EN ISO 17633-A T 19 9 Nb P C1 1 EN ISO 17633-B TS 347-F C1 1	Z 3323 TS347-FC1	344
K-329T	A5.22 E2209T1-1/4	EN ISO 17633-A T 22 9 3 N L P C1/M21 1 EN ISO 17633-B TS 2209-F C1/M21 1	Z 3323 TS2209-FB1	345
K-325T	A5.22 E2553T0-G	EN ISO 17633-B TS 2553-F C1 0	Z 3323 TS329J4L-FC0	346
K-325TP	A5.22 E2594T1-1	-	Z 3323 TS329J4L-FC1	347

Flux Cored Arc Welding Wires

Gas shielded stainless FCW for stainless steel

Brand name	Classifications			Page
	AWS	EN	JIS	
K-409TiT	A5.22 E409T0-G	EN ISO 17633-B TS 409-M M13 0	-	348
K-409TiC	A5.22 E409T0-G	EN ISO 17633-B TS 409-M M13 0	-	349
K-430T	A5.22 E430T0-G	-	-	350
K-430LNb	-	EN ISO 17633-B TS 430Nb-M M13 0	Z 3323 TS430Nb-MA0	351
K-430LNbE	-	EN ISO 17633-B TS 430Nb-M I1 0	Z 3323 TS430Nb-MA0	352
K-436T	-	-	-	353
K-439T	-	-	-	354
K-439TE	-	-	-	355
K-410T	A5.22 E410T0-1/4	EN ISO 17633-A T 13 R C1/M21 4 EN ISO 17633-B TS 410-F C1/M21 0	Z 3323 TS410-FB0	356
K-410NiMoT	A5.22 E410NiMoT0-4	EN ISO 17633-A T 13 4 R M21 4 EN ISO 17633-B TS 410NiMo-F M 21 0	Z 3323 TS410NiMo-FM0	357
K-410NiMoTC	A5.22 E410NiMoT1-1	EN ISO 17633-A T 13 4 P C1 1 EN ISO 17633-B TS410NiMo-F C1 1	Z 3323 TS410NiMo-FC1	358

TIG·MIG Welding Consumables

TIG Welding Consumables

For mild steel and 490MPa high tensile strength steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-50	A5.18 ER70S-6	ISO 636-A:2017 W 46 3 3Si1 ISO 636-B:2017 W 49A 3U 6	D 7140 YGT50	Z 3316 W 49 A 3U 6	363
T-50G	A5.18 ER70S-G	ISO 636-A:2017 W 46 3 3Si1 ISO 636-B:2017 W 49A 3U 6	D 7140 YGT50	Z 3316 W 49 A 3U 6	364
T-53	A5.18 ER70S-3	ISO 636-A:2017 W 46 3 2Si ISO 636-B:2017 W 49A 3U 3	D 7140 YGT50	Z 3316 W 49 A 3U 3	365
T-70S2	A5.18 ER70S-2	ISO 636-A:2017 W 46 3 2Ti ISO 636-B:2017 W 49A 3U 2	D 7140 YGT50	Z 3316 W 49 A 3U 2	366
T-90	A5.28 ER90S-G	ISO 16834-A:2012 W 62 6 I1 Mn3Ni1Mo ISO 16834-B:2012 W 69A 6U I1 N2M1T	-	Z 3316 W 62 A 6U N2M1T	367
T-100	A5.28 ER100S-1/G	ISO 16834-A:2012 W 62 5 I1 Z Mn3Ni1.5Mo ISO 16834-B:2012 W 69A 5U I1 N4CM21T	-	Z 3316 W 69 A 5U N4CM21T	368
T-100D	A5.28 ER100S-1/G	ISO 16834-A:2012 W 62 5 I1 Z Mn3Ni1.5Mo ISO 16834-B:2012 W 69A 5U I1 N4CM21T	-	Z 3316 W 69 A 5U N4CM21T	369
T-110	A5.28 ER110S-G	ISO 16834-A:2012 W 69 4 I1 Mn3Ni1CrMo	-	-	370
T-120	A5.28 ER120S-G	ISO 16834-A:2012 W 69 6 I1 Z ISO 16834-B:2012 W 83A 6U I1 G	-	Z 3316 W 83 A 6 M 0	371

For heat-resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-80D2	A5.28 ER80S-D2	-	D 7140 YGTM	Z 3316 YGTM	372
T-81CMA	A5.28 ER80S-G	-	-	Z 3317 W 55-1CM3	373
T-80SB2	A5.28 ER80S-B2	ISO 21952-B:2012 W 55 I1 1CM	D 7140 YGT1CM	Z 3317 W 55-1CM	374
T-90SB3	A5.28 ER90S-B3	ISO 21952-B:2012 W 62 I1 2C1M	D 7140 YGT2CM	Z 3317 W 62-2C1M	375
T-90SB9	A5.28 ER90S-B9	ISO 21952-A:2012 W CrMo91 ISO 21952-B:2012 W 62 I1 9C1MV	-	-	376
T-90SB9W	A5.28 ER90S-B9(mod.)	-	-	-	377

For low temperature service steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-80SNi1	A5.28 ER80S-Ni1	-	-	-	378
T-80SNi2	A5.28 ER80S-Ni2	ISO 636-A:2017 W 46 6 2Ni2	-	-	379
T-80SNi3	A5.28 ER80S-Ni3	-	-	-	380

TIG·MIG Welding Consumables

For stainless steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-2209	A5.9 ER2209	ISO 14343 A W 22 9 3 N L ISO 14343 B SS 2209	-	Z 3321 YS2209	381
T-2594	A5.9 ER2594	ISO 14343 A W 25 9 4 N L ISO 14343 B SS 2594	-	Z 3321 YS329J4L	381
T-308	A5.9 ER308	ISO 14343 B SS 308	D 3696 STSY308	Z 3321 YS308	382
T-308L	A5.9 ER308L	ISO 14343 A W 19 9 L ISO 14343 B SS 308L	D 3696 STSY308L	Z 3321 YS308L	382
T-308H	A5.9 ER308H	ISO 14343 A W 19 9 H ISO 14343 B SS 308H	-	Z 3321 YS308H	383
T-308LSi	A5.9 ER308LSi	ISO 14343 A W 19 9 L Si ISO 14343 B SS 308LSi	-	Z 3321 YS308LSi	383
T-309	A5.9 ER309	ISO 14343 A W 22 12 H ISO 14343 B SS 309	D 3696 STSY309	Z 3321 YS309	384
T-309L	A5.9 ER309L	ISO 14343 A W 23 12 L ISO 14343 B SS 309L	D 3696 STSY309L	Z 3321 YS309L	384
T-309LSi	A5.9 ER309LSi	ISO 14343 A W 23 12 L Si ISO 14343 B SS 309LSi	-	Z 3321 YS309LSi	385
T-309LMo	A5.9 ER309LMo	ISO 14343 A W 23 12 2 L ISO 14343 B SS 309LMo	-	Z 3321 YS309LMo	385
T-310	A5.9 ER310	ISO 14343 A W 25 20 ISO 14343 B SS 310	D 3696 STSY310	Z 3321 YS310	386
T-312	A5.9 ER312	ISO 14343 A W 29 9 ISO 14343 B SS 312	D 3696 STSY312	Z 3321 YS312	386
T-316	A5.9 ER316	ISO 14343 B SS 316	D 3696 STSY316	Z 3321 YS316	387
T-316L	A5.9 ER316L	ISO 14343 A W 19 12 3 L ISO 14343 B SS 316L	D 3696 STSY316L	Z 3321 YS316L	387
T-316H	A5.9 ER316H	ISO 14343 A W 19 12 3 H ISO 14343 B SS 316H	-	Z 3321 YS316H	388
T-316LSi	A5.9 ER316LSi	ISO 14343 A W 19 12 3 L Si ISO 14343 B SS 316LSi	-	Z 3321 YS316LSi	388
T-317L	A5.9 ER317L	ISO 14343 A W 18 15 3 L ISO 14343 B SS 317L	D 3696 STSY317L	Z 3321 YS317L	389
T-347	A5.9 ER347	ISO 14343 A W 19 9 Nb ISO 14343 B SS 347	D 3696 STSY347	Z 3321 YS347	389
T-385	A5.9 ER385	ISO 14343 A W 20 25 5 Cu L ISO 14343 B SS 385	-	Z 3321 YS385	390
T-410	A5.9 ER410	ISO 14343 A W 13 ISO 14343 B SS 410	D 3696 STSY410	Z 3321 YS410	390
T-420	A5.9 ER420	ISO 14343 B SS 420	-	Z 3321 YS420	391
T-430	A5.9 ER430	ISO 14343 B SS 430	D 3696 STSY430	Z 3321 YS430	391
T-430LNb	-	ISO 14343 A W 18 L Nb	-	Z 3321 YS430LNb	392

TIG·MIG Welding Consumables

MIG welding consumables

For stainless steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
M-2209	A5.9 ER2209	ISO 14343 A G 22 9 3 N L ISO 14343 B SS 2209	-	Z 3321 YS2209	393
M-2594	A5.9 ER2594	ISO 14343 A G 25 9 4 N L ISO 14343 B SS 2594	-	Z 3321 YS329J4L	393
M-307Si	-	ISO 14343 A G 18 8 Mn	-	-	394
M-308	A5.9 ER308	ISO 14343 B SS 308	D 3696 STSY308	Z 3321 YS308	394
M-308L	A5.9 ER308L	ISO 14343 A G 19 9 L ISO 14343 B SS 308L	D 3696 STSY308L	Z 3321 YS308L	395
M-308H	A5.9 ER308H	ISO 14343 A G 19 9 H ISO 14343 B SS 308H	-	Z 3321 YS308H	395
M-308LSi	A5.9 ER308LSi	ISO 14343 A G 19 9 L Si ISO 14343 B SS 308LSi	-	Z 3321 YS308LSi	396
M-309	A5.9 ER309	ISO 14343 A G 23 12 H ISO 14343 B SS 309	D 3696 STSY309	Z 3321 YS309	396
M-309L	A5.9 ER309L	ISO 14343 A G 23 12 L ISO 14343 B SS 309L	D 3696 STSY309L	Z 3321 YS309L	397
M-309LSi	A5.9 ER309LSi	ISO 14343 A G 23 12 L Si ISO 14343 B SS 309LSi	-	Z 3321 YS309LSi	397
M-309LMo	A5.9 ER309LMo	ISO 14343 A G 23 12 2 L ISO 14343 B SS 309LMo	-	Z 3321 YS309LMo	398
M-310	A5.9 ER310	ISO 14343 A G 25 20 ISO 14343 B SS 310	D 3696 STSY310	Z 3321 YS310	398
M-312	A5.9 ER312	ISO 14343 A W 29 9 ISO 14343 B SS 312	D 3696 STSY312	Z 3321 YS312	399
M-316	A5.9 ER316	ISO 14343 B SS 316	D 3696 STSY316	Z 3321 YS316	399
M-316L	A5.9 ER316L	ISO 14343 A G 19 12 3 L ISO 14343 B SS 316L	D 3696 STSY316L	Z 3321 YS316L	400
M-316H	A5.9 ER316H	ISO 14343 A G 19 12 3 H ISO 14343 B SS 316H	-	Z 3321 YS316H	400
M-316LSi	A5.9 ER316LSi	ISO 14343 A G 19 12 3 L Si ISO 14343 B SS 316LSi	-	Z 3321 YS316LSi	401
M-317L	A5.9 ER317L	ISO 14343 A G 18 15 3 L ISO 14343 B SS 317L	D 3696 STSY317L	Z 3321 YS317L	401
M-347	A5.9 ER347	ISO 14343 A G 19 9 Nb ISO 14343 B SS 347	D 3696 STSY347	Z 3321 YS347	402
M-385	A5.9 ER385	ISO 14343 A G 20 25 5 Cu L ISO 14343 B SS 385	-	Z 3321 YS385	402
M-410	A5.9 ER410	ISO 14343 A G 13 ISO 14343 B SS 410	D 3696 STSY410	Z 3321 YS410	403
M-420	A5.9 ER420	ISO 14343 B SS 420	-	Z 3321 YS420	403
M-430	A5.9 ER430	ISO 14343 B SS 430	D 3696 STSY430	Z 3321 YS430	404
M-430LNb	-	ISO 14343 A G 18 L Nb	-	Z 3321 YS430LNb	404

Submerged Arc Welidng Consumables

490MPa high tensile strength steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-100XKD-50	A5.17 F7A(P)0-EH14	EN ISO 14171 S 46 0 RS S4	B ISO 14171 S 46 0 RS S4	Z 3183 S502-H	409
EF-100XKD-EH12K	A5.17 F7A(P)Z-EH12K	EN ISO 14171 S 46 Z RS S3Si	B ISO 14171 S 46 Z RS S3Si	Z 3183 S501-H	410
EF-100HXKD-50	A5.17 F7A(P)2-EH14	EN ISO 14171 S 46 3 AB S4	B ISO 14171 S 46 3 AB S4	Z 3183 S502-H	411
EF-100HXKD-EH12K	A5.17 F7A(P)2-EH12K	EN ISO 14171 S 46 3 AB S3Si	B ISO 14171 S 46 3 AB S3Si	Z 3183 S502-H	412
EF-100SXKD-42	A5.17 F7A(P)2-EM12K	EN ISO 14171 S 46 2 AB S2Si	B ISO 14171 S 46 2 AB S2Si	Z 3183 S502-H	413
EF-100SXKD-41/KD-43	A5.17 F7A0-EL12	EN ISO 14171 S 42 0 AB S1	B ISO 14171 S 42 0 AB S1	Z 3183 S502-H	414
	A5.17 F7A(P)0-EM13K	EN ISO 14171 S 46 2 AB SZ	B ISO 14171 S 46 2 AB SZ		
EF-100SBXKD-50	A5.17 F7A2-EH14	EN ISO 14171 S 46 3 AB S4	B ISO 14171 S 46 3 AB S4	Z 3183 S502-H	415
EF-200XKD-40(41)	A5.17 F7A(P)4-EL8(EL12)	EN ISO 14171 S 42 4 AB SZ(S1)	B ISO 14171 S 42 4 AB SZ(S1)	Z 3183 S502-H	416
EF-200KXKD-42	A5.17 F7A(P)6-EM12K	EN ISO 14171 S 46 5 CS S2Si	B ISO 14171 S 46 5 CS S2Si	Z 3183 S502-H	417
EF-200VXKD-50	A5.17 F7A(P)6-EH14	EN ISO 14171 S 46 5 CS S4	B ISO 14171 S 46 5 CS S4	Z 3183 S502-H	418
EF-200VXKD-42	A5.17 F7A(P)6-EM12K	EN ISO 14171 S 42 5 CS S2Si	B ISO 14171 S 42 5 CS S2Si	Z 3183 S502-H	419
EF-200VXKD-EH12K	A5.17 F7A(P)8-EH12K	EN ISO 14171 S 46 6 CS S3Si	B ISO 14171 S 46 6 CS S3Si	Z 3183 S502-H	420
EF-200PxKD-42	A5.17 F7A4-EM12K	EN ISO 14171 S 42 4 AB S2Si	B ISO 14171 S 42 4 AB S2Si	Z 3183 S502-H	421

For 520~760MPa high tensile strength steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-100HHXKD-50	A5.23 F8A2-EH14-G	ISO 14171 S 46 3 AB S4	B ISO 14171 S 46 3 AB S4	Z 3183 S584-H	422
EF-100XKD-60	A5.23 F8A(P)Z-EA3-G	ISO 14171 S 50 Z RS SZ	B ISO 14171 S 50 Z RS SZ	Z 3183 S531-H	423
EF-100HXKD-60	A5.23 F8A(P)4-EA3-G	ISO 14171 S 50 3 AB SZ	B ISO 14171 S 50 3 AB SZ	Z 3183 S584-H	424
EF-100HXKD-EA2	A5.23 F8A(P)4-EA2-A2	ISO 14171 S 50 3 AB S2Mo	B ISO 14171 S 50 3 AB S2Mo	Z 3183 S584-H	425
EF-200VXKD-60	A5.23 F8A(P)6-EA3-G	ISO 14171 S 50 5 CS SZ	B ISO 14171 S 50 5 CS SZ	Z 3183 S584-H	426
EF-200VXKD-EA2	A5.23 F8A(P)6-EA2-A2	ISO 14171 S 46 5 CS S2Mo	B ISO 14171 S 46 5 CS S2Mo	Z 3183 S584-H	427
EF-200VXKD-Ni1K	A5.23 F8A(P)4-ENi1K-Ni1	ISO 14171 S 50 4 CS SZ	B ISO 14171 S 50 4 CS SZ	-	428
EF-200PxKD-EA2	A5.23 F8A4-EA2-A2	ISO 14171 S 46 4 AB S2Mo	B ISO 14171 S 46 4 AB S2Mo	Z 3183 S582-H	429
EF-200VXKD-100	A5.23 F10A(P)4-EM2 -G	ISO 26304-A S 62 4 CS SZ	B ISO 26304-A S 62 4 CS SZ	Z 3183 S704-H2	430
		ISO 26304-B S 69A 4 CS SU N3M2	B ISO 26304-B S 69A 4 CS SU N3M2		
EF-200UVXKD-120	A5.23 F11A6-EG-G	ISO 26304-A S 69 5 FB SZ H5	B ISO 26304-A S 69 5 FB SZ H5	Z 3183 S804-H2	431
		ISO 26304-B S 78A 5 FB SUG H5	B ISO 26304-B S 78A 5 FB SUG H5		
EF-260XKD-120	A5.23 F12A6-EG-G	ISO 26304-A S 69 5 FB SZ H5	B ISO 26304-A S 69 5 FB SZ H5	Z 3183 S804-H2	432
		ISO 26304-B SU 83A 5 FB SUG H5	B ISO 26304-B S 83A 5 FB SUG H5		

Fow low temperature service steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-200LTXKD-50	A5.17 F7A(P)8-EH14	ISO 14171 S 46 6 CS S4	B ISO 14171 S 46 6 CS S4	Z 3183 S502-H	433
EF-200LTXKD-55	A5.23 F8A(P)8-EH14-G	ISO 14171 S 46 6 CS S4	B ISO 14171 S 46 6 CS S4	Z 3183 S502-H	434
EF-200LT PlusXKD-50	A5.17 F7A(P)8-EH14	ISO 14171 S 46 6 CS S4	B ISO 14171 S 46 6 CS S4	Z 3183 S502-H	435
EF-200LT PlusXKD-EH12K	A5.17 F7A(P)8-EH12K	ISO 14171 S 46 6 CS S3Si	B ISO 14171 S 46 6 CS S3Si	Z 3183 S502-H	436
EF-200UVXKD-EH12K	A5.17 F7A(P)8-EH12K	ISO 14171 S 46 6 FB S3Si	B ISO 14171 S 46 6 FB S3Si	Z 3183 S502-H	437
EF-200UVXKD-42	A5.17 F7A8-EM12K	ISO 14171 S 42 6 FB S2Si	B ISO 14171 S 42 6 FB S2Si	Z 3183 S502-H	438
EF-200CTxKD-50	A5.17 F7A(P)8-EH14	ISO 14171 S 46 6 CS S4	B ISO 14171 S 46 6 CS S4	Z 3183 S502-H	439

Submerged Arc Weldng Consumables

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-200LT×KD-Ni3	A5.23 F8A10-ENi3-Ni3 F7P10-ENi3-Ni3	ISO 14171 S 46 7 CS SZ	B ISO 14171 S 46 7 CS SZ	-	440
EF-200LTXKD-60	A5.23 F9A8-EA3-G	ISO 14171 S 50 5 CS SZ	B ISO 14171 S 50 5 CS SZ	Z 3183 S584-H	441

For heat-resisting steel

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-200HXKD-60	A5.23 F8P0-EA3-A3	ISO 14171 S 50 4 CS SZ	B ISO 14171 S 50 4 CS SZ	Z 3183 S584-H	442
EF-200HXKD-B2	A5.23 F8P0-EB2-B2	ISO 24598-A S CrMo1 CS	B ISO 24598-A S CrMo1 CS	Z 3183 S572-1CM	443
		ISO 24598-B S 55 2 CS SU 1CM	B ISO 24598-B S 55 2 CS SU 1CM		
EF-200HXKD-B3	A5.23 F9P0-EB3-B3	ISO 24598-A S CrMo2 CS	B ISO 24598-A S CrMo2 CS	Z 3183 S642-2CM	444
		ISO 24598-B S 62 2 CS SU 2C1M	B ISO 24598-B S 62 2 CS SU 2C1M		
EF-200HCXKD-B9	A5.23 F10PZ-EB91-B91	ISO 24598-A S CrMo91 FB	B ISO 24598-A S CrMo91 FB	-	445
		ISO 24598-B S 69 Z FB SU9C1MV	B ISO 24598-B S 69 Z FB SU9C1MV		
EF-100SBXKD-B2/KD-B3	A5.23 F8PZ-EB2-B2	ISO 24598-A S CrMo1 AB(KD-B2)	B ISO 24598-A S CrMo1 AB(KD-B2)	-	446
	A5.23 F9PZ-EB3-B3	S CrMo2 AB(KD-B3)	S CrMo2 AB(KD-B3)		
		ISO 24598-B S 55 2 AB SU 1CM	B ISO 24598-B S 55 2 AB SU 1CM		
		S 62 0 AB SU 2C1M	S 62 0 AB SU 2C1M		

SAW Flux for stainless steel and duplex stainless steel and nickel alloy

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-300N	-	ISO 14174 SA AF 2 DC	-	-	447
EF-600N×KW-M625	-	ISO 14174 SA AF 2 DC	-	-	448

※ Combination Wires of EF-300N : M-308L, 309L, 316L, 347, 2209, 2594 ...

SAW & ESW Flux for strip cladding

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-300ST/EF-300STK	-	-	-	-	449
EF-300ESW	-	-	-	-	450

SAW Flux for hardfacing

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
EF-200F	-	IOS 14174 SA CS 2 DC	-	-	451

※ Wires : K-13CrHT, K-15CrHT ...

Oxyfuel Gas Welding Consumables

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-40	A5.2 R45	-	D 7005 GA46	Z 3201 GA46	457

Nickel alloy and Copper alloy

Covered electrodes

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KNCF-2	A5.11 ENiCrFe-2	EN ISO 14172 E Ni 6092	B ISO 14172 E Ni 6133	Z 3224 E Ni 6133	461
KNCF-3	A5.11 ENiCrFe-3	EN ISO 14172 E Ni 6182	B ISO 14172 E Ni 6182	Z 3224 E Ni 6182	462
KW-A82	A5.11 ENiCrFe-3	EN ISO 14172 E Ni 6182	B ISO 14172 E Ni 6182	Z 3224 E Ni 6182	463
KW-A82M	A5.11 ENiCrFe-3(mod.)	EN ISO 14172 E Ni 6082	B ISO 14172 E Ni 6082	Z 3224 E Ni 6082	464
KW-A690	A5.11 ENiCrFe-7	EN ISO 14172 E Ni 6152	B ISO 14172 E Ni 6152	Z 3224 E Ni 6152	465
KW-A625	A5.11 ENiCrMo-3	EN ISO 14172 E Ni 6625	B ISO 14172 E Ni 6625	Z 3224 E Ni 6625	466
KW-A276	A5.11 ENiCrMo-4	EN ISO 14172 E Ni 6276	B ISO 14172 E Ni 6276	Z 3224 E Ni 6276	467
KW-A617	A5.11 ENiCrCoMo-1(mod.)	EN ISO 14172 E Ni 6617	B ISO 14172 E Ni 6617	Z 3224 E Ni 6617	468
KW-A60	A5.11 ENiCu-7	EN ISO 14172 E Ni 4060	B ISO 14172 E Ni 4060	Z 3224 E Ni 4060	469

TIG welding consumables (Ni alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KW-T61	A5.14 ERNi-1	ISO 18274 S Ni 2061	B ISO 18274 S Ni 2061	Z 3334 S Ni 2061	470
KW-T82	A5.14 ERNiCr-3	ISO 18274 S Ni 6082	B ISO 18274 S Ni 6082	Z 3334 S Ni 6082	470
KW-T625	A5.14 ERNiCrMo-3	ISO 18274 S Ni 6625	B ISO 18274 S Ni 6625	Z 3334 S Ni 6625	471
KW-T276	A5.14 ERNiCrMo-4	ISO 18274 S Ni 6276	B ISO 18274 S Ni 6276	Z 3334 S Ni 6276	471
KW-T622	A5.14 ERNiCrMo-10	ISO 18274 S Ni 6022	B ISO 18274 S Ni 6022	Z 3334 S Ni 6022	472
KW-T690A	A5.14 ERNiCrFe-7A	-	-	-	472
KW-T60	A5.14 ERNiCu-7	ISO 18274 S Ni 4060	B ISO 18274 S Ni 4060	Z 3334 S Ni 4060	473
KW-T617	A5.14 ERNiCrCoMo-1	ISO 18274 S Ni 6617	B ISO 18274 S Ni 6617	Z 3334 S Ni 6617	473
KW-T718	A5.14 ERNiFeCr-2	ISO 18274 S Ni 7718	B ISO 18274 S Ni 7718	Z 3334 S Ni 7718	474

TIG welding consumables (Cu alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KW-TCuNi	A5.7 ERCuNi	ISO 24373 S Cu 7158	D 7044 YCuNi-3	Z 3341 YCuNi-3	475
KW-TCuNi9	-	ISO 24373 S Cu 7061	D 7044 YCuNi-1	Z 3341 YCuNi-1	475
KW-TCuSnA	A5.7 ERCuSn-A	ISO 24373 S Cu 5180	D 7044 YCuSn A	Z 3341 YCuSn A	476
KW-TCuSnC	A5.7 ERCuSn-C	-	-	-	476

Nickel alloy and Copper alloy

TIG welding consumables (Al alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
T-4043	A5.10 ER4043	-	-	-	477
T-5183	A5.10 ER5183	-	-	-	477
T-5356	A5.10 ER5356	-	-	-	478
T-5556	A5.10 ER5556	-	-	-	478

MIG welding consumables (Ni alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KW-M61	A5.1 ERNi-1	ISO 18274 S Ni 2061	B ISO 18274 S Ni 2061	Z 3334 S Ni 2061	479
KW-MNF1	-	ISO 1071 NiFe-1	-	-	479
KW-M82	A5.14 ERNiCr-3	ISO 18274 S Ni 6082	B ISO 18274 S Ni 6082	Z 3334 S Ni 6082	480
KW-M625	A5.14 ERNiCrMo-3	ISO 18274 S Ni 6625	B ISO 18274 S Ni 6625	Z 3334 S Ni 6625	480
KW-M276	A5.14 ERNiCrMo-4	ISO 18274 S Ni 6276	B ISO 18274 S Ni 6276	Z 3334 S Ni 6276	481
KW-M622	A5.14 ERNiCrMo-10	ISO 18274 S Ni 6022	B ISO 18274 S Ni 6022	Z 3334 S Ni 6022	481
KW-M690A	A5.14 ERNiCrFe-7A	-	-	-	482
KW-M60	A5.14 ERNiCu-7	ISO 18274 S Ni 4060	B ISO 18274 S Ni 4060	Z 3334 S Ni 4060	482
KW-M617	A5.14 ERNiCrCoMo-1	ISO 18274 S Ni 6617	B ISO 18274 S Ni 6617	Z 3334 S Ni 6617	483
KW-M718	A5.14 ERNiFeCr-2	ISO 18274 S Ni 7718	B ISO 18274 S Ni 7718	Z 3334 S Ni 7718	483

MIG welding consumables (Cu alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
KW-MCuNi	A5.7 ERCuNi	ISO 24373 S Cu 7158	D 7044 YCuNi-3	Z 3341 YCuNi-3	484
KW-MCuNi9	-	ISO 24373 S Cu 7061	D 7044 YCuNi-1	Z 3341 YCuNi-1	484
KW-MCuAlA2	A5.7 ERCuAl-A2	ISO 24373 S Cu 6180	D 7044 YCuAl	Z 3341 YCuAl	485
KW-MCuSi	A5.7 ERCuSi-A	ISO 24373 S Cu 6560	D 7044 YCuSi B	Z 3341 YCuSi B	485
KW-MCuSnA	A5.7 ERCuSn-A	ISO 24373 S Cu 5180	D 7044 YCuSn A	Z 3341 YCuSn A	486
KW-MCuSnC	A5.7 ERCuSn-C	-	-	-	486

MIG welding consumables (Al alloy)

Brand name	Classifications				Page
	AWS	EN	KS	JIS	
M-4043	A5.10 ER4043	-	-	-	487
M-5183	A5.10 ER5183	-	-	-	487
M-5356	A5.10 ER5356	-	-	-	488
M-5556	A5.10 ER5556	-	-	-	488

Covered Electrodes

FOR CARBON STEEL
FOR HIGH TENSILE STRENGTH STEEL
FOR ATMOSPHERIC CORROSION RESISTING STEEL
FOR LOW TEMPERATURE SERVICE STEEL
FOR HEAT-RESISTING STEEL
FOR HARDFACING
FOR STAINLESS STEEL
FOR CAST IRON
FOR SPECIAL PURPOSE

KCL-10

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 C 22	KS D 7004-2008	E4311
EN ISO 2560-B:2006	E 43 10 A	JIS Z 3211-2008	E4310
AWS A5.1-2012	E6010		

Description

- Covering is high cellulose type for welding of pipe, shipbuildings, tanks or galvanized surfaces and steel casting repairs.
- Good penetration combined with freedom from lack of fusion makes this electrode an excellent choice for pipe welding.
- Gives high ductility root weld and easy slag removal.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.11	0.36	0.63	0.015	0.013	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.1	min. 330	min. 430	min. 22		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	420	500	29	60	40	AW

* AW : As-Welded

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
(A)	V · OH	40~70	60~100	90~130	140~170

Approvals

ABS, BV, LR, NK, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KCL-11

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 2 C 12	KS D 7004-2008	E4311
EN ISO 2560-B:2006	E 43 11 A	JIS Z 3211-2008	E4311
AWS A5.1-2012	E6011		

Description

- Covering is high cellulose type for welding of steel sheets, pipes in building or shipbuilding.
- 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.
- Good mechanical properties and the weld metal neets requirement X-ray.
- Gives high ductility root weld and easy slag removal.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.31	0.58	0.017	0.018	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 330	min. 430	min. 22		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	410	500	24	60	40	AW

* AW : As-Welded

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. (A)	F	50~80	70~110	110~150	160~200
	V · OH	40~70	60~100	90~130	140~170

Approvals

ABS, DNV-GL, LR, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-6012

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 R 12	KS D 7004-2008	E4313
EN ISO 2560-B:2006	E 43 12 A	JIS Z 3211-2008	E4312
AWS A5.1-2012	E6012		

Description

- Covering is high titania type for welding of shells of railway vehicles, cars and othersteel structures and general light structural steels.
- Good weldability in vertical-down welding.
- Excellent X-ray quslity and good bead appearance.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.39	0.52	0.020	0.011	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1	min. 330	min. 430	min. 17			
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 47	
Example	400	490	30	70	55	AW

* AW : As-Welded

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
(A)	V · OH	40~95	70~110	100~140	120~160	

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KR-3000

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 R 11	KS D 7004-2008	E4313
EN ISO 2560-B:2006	E 43 13 A	JIS Z 3211-2008	E4313
AWS A5.1-2012	E6013		

Description

- Covering is high titania type for welding of all kinds of light constructional work in all positions, including pipe welding.
- Excellent striking and restriking properties.
- Excellent slag removal and bead appearance without undcut.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.35	0.4	0.020	0.011	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1	min. 330	min. 430	min. 17			
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 0	
Example	430	490	28	75	60	AW

* AW : As-Welded

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
(A)	V · OH	60~90	80~110	90~140	120~190	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

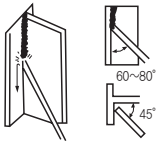
KR-3000V

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 R 15	KS D 7004-2008	E4313
EN ISO 2560-B:2006	E 43 13 A	JIS Z 3211-2008	E4313
AWS A5.1-2012	E6013		

Description



- Welding of shells of railway vehicles, cars and other steel sheet structures and general light structural steels.
- 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.
- Welding under excessive amperage conditions can cause the deterioration of radiographic soundness.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.09	0.38	0.49	0.020	0.013	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1	min. 330	min. 430	min. 17			
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 47	
Example	420	490	29	65	50	AW

* AW : As-Welded

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. (A)	V-down	80~120	100~150	150~200	210~250

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KI-101LF

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 2 RA 12	KS D 7004-2008	E4301
EN ISO 2560-B:2006	E 43 19 A U	JIS Z 3211-2008	E4319
AWS A5.1-2012	E6019		

Description

- Covering is ilmenite type for welding of high pressure boilers, ship hulls, building, bridges and other structural fabrications.
- The most excellent mechanical properties and also suitable for welding of structural steels of heavy section about 25mm thickness.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.15	0.47	0.020	0.012	0.01	0.02	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.1	min. 330	min. 430	min. 22		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 47	
Example	400	490	30	100	80	AW

* AW : As-Welded

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
(A)	V · OH	50~75	60~120	100~160	135~210	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-6022

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 A 23
AWS A5.1-2012	E6022

Description

- Covering is high iron oxide type for welding of flat and horizontal fillet welding of sheet metal.
- Highly efficient welding.
- Welding under excessive amperage conditions can cause the deterioration of radiographic soundness.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.14	0.28	1.20	0.025	0.012	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1		min. 430				
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 47	
Example	450	480	26	75	55	AW

* AW : As-Welded

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. (A) F V · OH	60~110	80~140	160~200	180~240	260~320

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KF-300LF

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 A 53	KS D 7004-2008	E4327
EN ISO 2560-B:2006	E 43 27 A	JIS Z 3211-2008	E4327
AWS A5.1-2012	E6027		

Description

- Covering is high iron oxide, iron powder type for welding of flat and horizontal fillet welding of ship hull constructions, bridges and general structures.
- Beautiful bead appearance with undercut.
- Extremely high efficient welding because of high deposition rate by much iron powder.
- Easy slag removal.
- Redry the electrode at 120~150°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.47	0.76	0.020	0.014	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.1		min. 430			≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	490	560	28	60	40	AW

* AW : As-Welded

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. (A)	F H–Fillet	150~180	180~200	180~230	220~270	250~290	280~310
Leg	(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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KT-303

For 420MPa mild steel

Classifications

EN ISO 2560-A:2006	E 38 0 RB 12	KS D 7004-2008	E4303
EN ISO 2560-B:2006	E 43 03 A U	JIS Z 3211-2008	E4303

Description

- Covering is lime titania type for welding of cars, other vehicles, light structural steels and pedestrian bridges.
- High welding efficiency and restriking property.
- Suitable for tack welding and intermittent welding.
- Excellent slag removal.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.24	0.40	0.017	0.016	0.01	0.02	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
JIS Z 3211	min. 330	min. 430	min. 20	≥ 27		
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	420	530	32	100	60	AW

* AW : As-Welded

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. (A)	F	65~100	100~140	140~190	200~260	250~330
	V · OH	50~90	80~130	110~170	140~210	

Approvals

KR, NK, KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KH-500LF

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 38 3 B 12 H10	KS D 7004-2008	E4316
EN ISO 2560-B:2006	E 43 16 A U H10	JIS Z 3211-2008	E4316
AWS A5.1-2012	E7016		

Description

- Covering is low hydrogen type for welding of strength members of ship hulls and general heavy structural steels, medium carbon steel, high sulphur steel. Underlaying of hardfacing.
- Excellent mechanical properties and radiographic soundness.
- Excellent crack resistance even in the welding of difficult to weld steels.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.46	0.96	0.015	0.011	0.02	0.03	0.01	0.01	1.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
JIS Z 3211	min. 330	min. 430	min. 20		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20		≥ 47	
Example	460	540	28	120	100	AW

* AW : As-Welded

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. (A)	F	60~90	90~130	140~190	180~240	250~300
	V · OH	50~80	80~110	120~160	160~200	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KH-500T

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 38 0 B 12 H10	KS D 7004-2008	E4316
EN ISO 2560-B:2006	E 43 16 A H10	JIS Z 3211-2008	E4316
AWS A5.1-2012	E7016		

Description

- Covering is low hydrogen type for tack welding of steels of ships, buildings and bridges.
- Good arc restriking properties.
- Designed for tack welding and intermittent welding.
- Easy slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.59	0.86	0.018	0.009	0.02	0.03	0.01	0.01	0.93

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
JIS Z 3211	min. 330	min. 430	min. 20		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	450	550	29	65	50	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	2.6	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	All	90~150	140~200	190~240

Approvals

KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KH-500W

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 38 3 B 12 H10	KS D 7004-2008	E4316
EN ISO 2560-B:2006	E 43 16 A H10	JIS Z 3211-2008	E4316
AWS A5.1-2012	E7016		

Description

- Specifically designed for one side welding of pipes and general structures.
- Covering is low hydrogen type for welding of all positions except vertical-down.
- Extremely good usability in flat positions.
- Easy slag removal and beautiful bead appearance.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.09	0.58	0.98	0.014	0.011	0.02	0.03	0.01	0.01	1.05

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
JIS Z 3211	min. 330	min. 430	min. 20		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	460	560	32	70	50	AW

* AW : As-Welded

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. (A)	F·OSW	30~70	60~110	90~140	120~160	130~180

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KH-500VLF

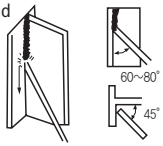
For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 38 0 B 35 H10	KS D 7004-2008	E4316
EN ISO 2560-B:2006	E 43 16 A H10	JIS Z 3211-2008	E4948
AWS A5.1-2012	E7048		

Description

- Covering is low hydrogen type for vertical-down welding of general structures and strength members of machinery, ship construction, bridges.
- 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.
- Excellent mechanical properties and crack resistance.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.



Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.06	0.53	0.72	0.012	0.011	0.02	0.03	0.01	0.01	0.79

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 380	470~600	min. 20	≥ 47		
Example	440	550	33	70	60	AW

* AW : As-Welded

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. (A)	V-Down	120~160	150~210	180~240	220~280	260~330

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7014

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 A RR 32	JIS Z 3211-2008	E4914
EN ISO 2560-B:2006	E 49 14 A		
AWS A5.1-2012	E7014		

Description

- Covering is iron powder, titania type for fillet welding of ship structure, bridges, structural steels.
- Designed for high efficiency in single pass and multiple pass welding.
- Excellent slag removal and good bead appearance.
- Quiet and stable arc.
- Redry the electrode at 120~150°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.08	0.41	0.73	0.020	0.014	0.02	0.03	0.01	0.01	0.8

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1	min. 400	min. 490	min. 17			
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	470	550	30	65	50	AW

* AW : As-Welded

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
(A)	V · OH	50~90	80~130	110~170	150~200	

Approvals

ABS, LR, JIS, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

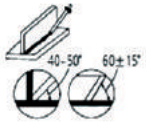
K-7024

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 A RR 53	KS D 7004-2008	E4324
EN ISO 2560-B:2006	E 49 24 A	JIS Z 3211-2008	E4924
AWS A5.1-2012	E7024		

Description



- Covering is iron powder, titania type for flat and horizontal fillet welding of ship structure, bridges, structural steels for buildings and general structures.
- Designed for high efficiency in single pass.
- Excellent slag removal and good bead appearance.
- Redry the electrode at 120~150°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.08	0.35	0.78	0.02	0.014	0.02	0.03	0.01	0.01	0.85

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) 0℃	Remarks
AWS A5.1	min. 400	min. 490	min. 17			
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	480	570	28	65	50	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+,-)

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

Approvals

ABS, BV, DNV-GL, KR, LR, JIS, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

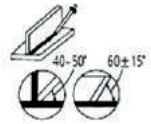
K-7024N

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 0 RR 53	KS D 7004-2008	E4324
EN ISO 2560-B:2006	E 49 24 A	JIS Z 3211-2008	E4924-1
AWS A5.1-2012	E7024-1		

Description



- Covering is iron powder, titania type for flat and horizontal fillet welding of ship structure, bridges, structural steels for buildings and general structures.
- Designed for high efficiency in single pass.
- Good notch toughness of the deposited weld metal.
- Excellent slag removal and good bead appearance.
- Redry the electrode at 120~150°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.08	0.63	0.88	0.024	0.020	0.15	0.03	0.01	0.01	1.08

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.1	min. 400	min. 490	min. 17		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	500	590	27	60	40	AW

* AW : As-Welded

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. (A)	F H-Fillet	100~150	140~190	180~230	200~250	230~270	260~300

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7010G

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 0 C 22	JIS Z 3211-2008	E4910-G
EN ISO 2560-B:2006	E 49 10-G A		
AWS A5.5-2014	E7010-G		

Description

- Covering is high cellulose type for all positions welding of pipes, general light structural steels.
- This electrode is characterized by deeply penetrating, forceful, spray type arc.
- Readily removable, thin friable slag.
- Good mechanical properties and the weld metal neets requirement X-ray.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.10	0.56	0.87	0.014	0.013	0.34	0.03	0.28	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	470	570	27	60	40	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	350	400	400
Amp.	A	50~80	70~110	110~150	160~200
(A)	V · OH	40~70	60~100	90~130	140~170

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7010P1

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 2 C 25	JIS Z 3211-2018	E4910-P1
EN ISO 2560-B:2006	E 49 10-P1 A		
AWS A5.5-2014	E7010-P1		

Description

- Covering is high cellulose type for vertical down welding on large pipelines. (API Spec. 5L Grade A, B, X42, X46, X52, X60, root pass up to X70)
- This electrode is characterized by deeply penetrating, forceful, spray type arc.
- Readily removable, thin friable slag.
- Good mechanical properties and the weld metal neets requirement X-ray.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.14	0.13	0.53	0.012	0.008	0.20	0.02	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	500	610	28	55	48	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	V-Down	80~130	120~180	160~210

KK-50LF

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 12 H10	KS D 7006-2008	E5016
EN ISO 2560-B:2006	E 49 16 A U H10	JIS Z 3211-2008	E4916
AWS A5.1-2012	E7016		

Description

- Covering is low hydrogen type for welding of 490MPa class high tensile steel in ships, bridges.
- Excellent mechanical properties and radiographic soundness.
- Excellent crack resistance even in the welding of difficult to weld steels.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.53	0.93	0.013	0.012	0.02	0.03	0.01	0.01	1.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	480	560	32	110	80	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~110	120~160	160~200	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7016HR

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 12 H5	KS D 7006-2008	E5016
EN ISO 2560-B:2006	E 49 16 A U H5	JIS Z 3211-2008	E4916 H5
AWS A5.1-2012	E7016 H4R		

Description

- Covering is low hydrogen type for welding of 490MPa class high tensile steel in ships, bridges.
- Excellent mechanical properties and radiographic soundness.
- Good impact properties and very low hydrogen content. (HD ≤4ml/100g)
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.57	0.87	0.013	0.011	0.02	0.03	0.01	0.01	0.94

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	500	610	27	110	90	AW

* AW : As-Welded

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. (A)	F	60~90	90~130	140~190	180~240	250~310
	V · OH	50~80	80~110	120~160	160~200	

Approvals

ABS, DNV-GL, JIS, CCS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 32 H10	KS D 7006-2008	E5016
EN ISO 2560-B:2006	E 49 18 A U H10	JIS Z 3211-2008	E4918
AWS A5.1-2012	E7018		

Description

- Covering is low hydrogen, iron powder type for welding of 490MPa class high tensile steel in ships, bridges, storage tank, building and industrial machinery.
- Excellent mechanical properties and radiographic soundness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.61	0.87	0.015	0.011	0.02	0.03	0.01	0.01	0.94

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	480	570	30	100	70	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~120	110~170	160~210	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018(PIPEWELD)

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 32 H5	KS D 7006-2008	E5016
EN ISO 2560-B:2006	E 49 18 A U H5	JIS Z 3211-2008	E4918 H5
AWS A5.1-2014	E7018 H4		

Description

- Covering is low hydrogen, iron powder type for welding of nuclear reactor vessels, LPG tankers, LPG storage tanks and similar installations at low temperature.
- Good impact value at -30°C.
- Good usability with direct current applications.
- Excellent mechanical properties and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.05	0.54	1.02	0.015	0.005	0.02	0.03	0.01	0.01	1.09

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	480	570	32	150	100	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

Dia. (mm)		2.5	3.2	4.0	5.0	6.0
Length (mm)		350	350	400	400	450
Amp. (A)	F	60~100	90~130	150~190	180~240	220~300
	V · OH	60~90	80~120	110~170	140~190	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018HR

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 32 H5	KS D 7006-2008	E5016
EN ISO 2560-B:2006	E 49 18 A U H5	JIS Z 3211-2008	E4918 H5
AWS A5.1-2012	E7018 H4R		

Description

- Covering is low hydrogen, iron powder type for welding of 490MPa class high tensile steel in ships, bridges, storage tank, building and industrial machinery.
- Good impact properties and very low hydrogen contens. (HD ≤4ml/100g)
- Excellent bead appearance and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.60	0.98	0.015	0.012	0.02	0.03	0.01	0.01	1.05

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	550	620	29	110	80	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~120	110~170	160~210	

Approvals

ABS, BV, DNV-GL, LR, JIS, CCS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018N

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 3 B 32 H10	JIS Z 3211-2012	E4918-1
EN ISO 2560-B:2006	E 49 18-1 A U H10		
AWS A5.1-2014	E7018-1		

Description

- Covering is low hydrogen, iron powder type for welding of nuclear reactor vessels, LPG tankers, LPG storage tanks and similar installations at low temperature.
- Good impact value at -45°C.
- Excellent mechanical properties and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.07	0.58	1.38	0.013	0.012	0.15	0.03	0.01	0.01	1.58

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -45℃	Remarks
AWS A5.5	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	510	590	32	100	75	AW

* AW : As-Welded

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
(A)	V · OH	60~90	85~120	110~160	130~180	

Approvals

DNV-GL, LR, RINA, JIS, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018NP

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 4 B 42 H5	JIS Z 3211-2008	E4918-1 H5
EN ISO 2560-B:2006	E 49 18-1 A U H5		
AWS A5.1-2014	E7018-1 H4R		

Description

- Covering is low hydrogen, iron powder type for welding of nuclear reactor vessels, LPG tankers, LPG storage tanks and similar installations at low temperature.
- Good impact value at -45°C.
- Excellent mechanical properties and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.05	0.45	1.18	0.013	0.012	0.25	0.03	0.01	0.02	1.49

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -45℃	Remarks
AWS A5.5	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	510	570	32	110	75	AW

* AW : As-Welded

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	70~100	90~130	150~190	160~220	180~230
(A)	V · OH	60~90	85~120	110~160	130~180	

Approvals

ABS, BV, DNV-GL, LR

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7028LF

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 42 0 B 52	KS D 7006-2008	E5026
EN ISO 2560-B:2006	E 49 28 A	JIS Z 3211-2008	E4928
AWS A5.1-2012	E7028		

Description

- Covering is low hydrogen type for flat and horizontal fillet welding of 490MPa class high tensile steel.
- Extremely high deposition rate and good slag removal.
- For application of gravity welding and auto-contact welding.
- Quiet and stable arc.
- Redry the electrode at 200~250°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn*	P	S	Ni*	Cr*	Mo*	V*	*Sum
0.06	0.37	0.98	0.021	0.013	0.02	0.03	0.01	0.01	1.05

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.1	min. 400	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	470	550	31	65	50	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8010G

For 560MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 46 0 C 22	JIS Z 3211-2008	E5510-G
EN ISO 2560-B:2006	E 55 10-G A		
AWS A5.5-2014	E8010-G		

Description

- Covering is high cellulose type for all positions welding of pipes, general light structural steels.
- This electrode is characterized by deeply penetrating, forceful, spray type arc.
- Readily removable, thin friable slag.
- Good mechanical properties and the weld metal neets requirement X-ray.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.09	0.43	0.76	0.011	0.009	0.32	0.03	0.25	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 2560-A	min. 460	530~680	min. 20	≥ 47		
Example	520	610	24	60	40	AW

* AW : As-Welded

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
(A)	V · OH	40~70	60~100	90~130	140~170

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8010P1

For 490MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 46 2 C 25	JIS Z 3211-2018	E5510-P1
EN ISO 2560-B:2006	E 55 10-P1 A		
AWS A5.5-2014	E8010-P1		

Description

- Covering is high cellulose type for all positions welding of pipes, general light structural steels.
- This electrode is characterized by deeply penetrating, forceful, spray type arc.
- Readily removable, thin friable slag.
- Good mechanical properties and the weld metal neets requirement X-ray.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.14	0.15	0.54	0.013	0.007	0.51	0.04	0.001	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-A	min. 460	530~680	min. 17	≥ 47		
Example	570	650	26	55	47	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	350	350
Amp. (A)	V-Down	80~130	120~180	160~210

KK-55

For 560MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 46 3 B 12 H10	KS D 7006-2008	E5316
EN ISO 2560-B:2006	E 55 16-G A H10	JIS Z 3211-2008	E5516-G
AWS A5.5-2014	E8016-G		

Description

- Covering is low hydrogen type for welding of 560MPa class high tensile steel.
- Satisfactory bead appearance and slag removal.
- Excellent mechanical properties and radiographic soundness.
- Good weldability and usability.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.66	1.45	0.016	0.011	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 2560-A	min. 460	530~680	min. 20	≥ 47		
Example	540	600	28	60	45	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~120	110~170	160~200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018

For 560MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 46 3 B 32 H10	KS D 7006-2008	E5316
EN ISO 2560-B:2006	E 55 18-G A H10	JIS Z 3211-2008	E5518-G
AWS A5.5-2014	E8018-G		

Description

- Covering is low hydrogen, iron powder type for welding of 560MPa class high tensile steel in ships, bridges, penstocks and rails.
- Excellent mechanical properties and radiographic soundness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.56	1.32	0.018	0.011	0.35	0.03	0.25	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 2560-A	min. 460	530~680	min. 20		≥ 47	
Example	490	590	28	95	80	AW

* AW : As-Welded

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	250~310
(A)	V · OH	50~80	80~110	120~170	160~200	

Approvals

ABS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KK-60

For 620MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 50 0 1Ni B 12 H10	KS D 7006-2008	E5816
EN ISO 2560-B:2006	E 55 16-G A H10	JIS Z 3211-2008	E6216-G
AWS A5.5-2014	E9016-G		

Description

- Covering is low hydrogen type for welding of 620MPa class high tensile steelin bridges, vehicles.
- Mn-Ni-Mo type deposites weld metal.
- Satisfactory bead appearance and slag removal.
- Excellent mechanical properties and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.58	1.04	0.018	0.011	0.64	0.03	0.29	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.5	min. 530	min. 620	min. 17			
EN ISO 2560-A	min. 500	560~720	min. 18	≥ 47		
Example	550	650	28	80	50	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~110	120~170	160~200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KK-70

For 690MPa high tensile steel

Classifications

EN 757:1997	E 55 3 Z B 12 H10	KS D 7006-2008	E7016
AWS A5.5-2014	E10016-G	JIS Z 3211-2008	E6916-G

Description

- Covering is low hydrogen type for welding of 690MPa class high strength low alloy steel, yield point 620MPa of pressure vessels, penstocks and bridges.
- Satisfactory bead appearance and slag removal.
- Excellent crack resistance and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.49	1.05	0.015	0.011	1.87	0.05	0.37	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 600	min. 690	min. 16			
EN 757	min. 550	610~780	min. 18		≥ 47	
Example	640	730	26	100	90	AW

* AW : As-Welded

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. (A)	F	60~90	90~130	140~190	180~230	250~300
	V · OH	50~80	80~110	120~170	160~200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KK-80

For 760MPa high tensile steel

Classifications

EN 757:1997	E 62 0 Z B 12 H10	KS D 7006-2008	E8016
AWS A5.5-2014	E11016-G	JIS Z 3211-2008	E7616-G

Description

- Covering is low hydrogen type for welding of 760MPa class high strength low alloy steel, yield point 690MPa of pressure vessels, penstocks and bridges.
- Satisfactory bead appearance and slag removal.
- Excellent crack resistance and radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.60	1.10	0.013	0.012	1.84	0.23	0.43	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.5	min. 670	min. 760	min. 15			
EN 757	min. 620	690~890	min. 18	≥ 47		
Example	730	830	22	60	40	AW

* AW : As-Welded

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
(A)	V · OH	50~80	80~110	120~170	160~200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-9018M

For 620MPa high tensile steel

Classifications

EN ISO 2560-A:2006	E 50 5 Z B 32 H10	KS D 7006-2008	E5816
AWS A5.5-2014	E9018-M	JIS Z 3211-2008	E6218-N3M1

Description

- Covering is low hydrogen, iron powder type for welding of 620MPa class high tensile steel in bridge, pressure vessels, penstocks and machinery.
- Excellent mechanical properties especially in notch toughness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.05	0.51	0.88	0.013	0.011	1.58	0.10	0.2	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -50℃	Remarks
AWS A5.5	540~620	min. 620	min. 24		≥ 27	
EN ISO 2560-A	min. 500	560~720	min. 18		≥ 47	
Example	570	670	30	110	90	AW

* AW : As-Welded

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. (A)	F	50~100	90~130	140~190	190~240	250~310
	V · OH	40~80	80~115	110~160	140~170	

Approvals

ABS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-10018M

For 690MPa high tensile steel

Classifications

EN 757:1997	E 55 3 Z B 32 H10	KS D 7006-2008	E7016
AWS A5.5-2014	E10018-M	JIS Z 3211-2008	E6918-N3M2

Description

- Covering is low hydrogen, iron powder type for welding of 690MPa class high tensile steel in bridge, pressure vessels, penstocks and machinery.
- Excellent mechanical properties especially in notch toughness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.46	1.35	0.015	0.012	1.63	0.20	0.28	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	610~690	min. 690	min. 20		≥ 27	
EN 757	min. 500	610~780	min. 18	≥ 47		
Example	640	750	29	80	45	AW

* AW : As-Welded

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
(A)	V · OH	80~115	110~170	140~200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-11018M

For 760MPa high tensile steel

Classifications

EN 757:1997	E 62 3 Z B 32 H10	KS D 7006-2008	E8016
AWS A5.5-2014	E11018-M	JIS Z 3211-2008	E7618-N4M2

Description

- Covering is low hydrogen, iron powder type for welding of low alloy high strength steels having tesile properties of about 740~790MPa such as HY80, etc.
- Excellent mechanical properties especially in notch toughness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.41	1.49	0.015	0.012	1.86	0.25	0.35	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	680~760	min. 760	min. 20		≥ 27	
EN 757	min. 620	690~890	min. 18	≥ 47		
Example	730	830	22	70	40	AW

* AW : As-Welded

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	240~320
(A)	V · OH	40~90	80~120	110~160	140~200	

Approvals

ABS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-12018M

For 830MPa high tensile steel

Classifications

EN 757:1997	E 69 3 Z B 32 H10	JIS Z 3211-2008	E8318-N4C2M2
AWS A5.5-2014	E12018-M		

Description

- Covering is low hydrogen, iron powder type for welding of 890MPa class high tensile steel in bridge, pressure vessels, penstocks and machinery.
- Excellent mechanical properties especially in notch toughness.
- Good radiographic soundness.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.30	1.46	0.014	0.013	1.86	0.95	0.41	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	745~830	min. 830	min. 18		≥ 27	
EN 757	min. 690	760~960	min. 17	≥ 47		
Example	800	940	20	70	40	AW

* AW : As-Welded

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
(A)	V · OH	60~90	70~100	120~160	140~180	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018D1

For 560MPa high tensile steel (Mn-Mo steel)

Classifications

EN ISO 2560-B:2006	E 55 18-3M2 P H5	JIS Z 3211-2008	E5518-3M2 P H5
AWS A5.5-2014	E8018-D1 H4		

Description

- Covering is low hydrogen, iron powder type for welding of 560MPa class high tensile steel or 1.5%Mn-0.35%Mo steel.
- Very low hydrogen content. (HD ≤4ml/100g)
- Excellent mechanical properties and radiographic soundness.
- Good notch toughness at -50°C.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.47	1.33	0.013	0.013	0.77	0.02	0.30	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -50℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 27	
Example	640	690	25	60	40	PWHT

* PWHT : 620℃x1Hr.

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. (A)	F	70~100	90~150	150~190	190~260
	V · OH	60~90	80~130	120~170	140~200

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-10018D2

For 690MPa high tensile steel (Mn-Mo steel)

Classifications

EN 757:1997	E 55 3 Z BT 32 H5	JIS Z 3211-2008	E6918-4M2 P H5
AWS A5.5-2014	E10018-D2 H4		

Description

- Covering is low hydrogen, iron powder type for welding of 560MPa class high tensile steel (ASTM A302 Gr.B) or 1.85%Mn-0.35%Mo steel.
- Very low hydrogen content. (HD ≤4ml/100g)
- Excellent mechanical properties especially in notch toughness.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.10	0.58	1.71	0.017	0.015	0.74	0.02	0.31	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	min. 600	min. 690	min. 16		≥ 27	
EN 757	min. 550	610~780	min. 18	≥ 47		
Example	680	760	23	60	40	PWHT

* PWHT : 620℃x1Hr.

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	70~100	90~150	150~190	190~260
(A)	V · OH	60~90	80~130	120~170	140~200

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018D3

For 560MPa high tensile steel (Mn-Mo steel)

Classifications

EN ISO 2560-B:2006	E 55 18-3M3 P H5	JIS Z 3211-2008	E5518-3M3 P H5
AWS A5.5-2014	E8018-D3 H4		

Description

- Covering is low hydrogen, iron powder type for welding of 560MPa class high tensile steel or 1.5%Mn-0.5%Mo steel.
- Very low hydrogen content. (HD ≤4ml/100g)
- Excellent mechanical properties and radiographic soundness.
- Good notch toughness at -50°C.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.05	0.37	1.39	0.014	0.010	0.77	0.05	0.55	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -50℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 27	
Example	660	730	23	55	35	PWHT

* PWHT : 620℃x1Hr.

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. (A)	F	70~100	90~150	150~190	190~260
	V · OH	60~90	80~130	120~170	140~200

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-50G

For atomospheric corrosion resisting steel

Classifications

EN ISO 2560-A:2006	E 42 3 Z B 12 H10	KS D 7101-2002	DA5016W
EN ISO 2560-B:2006	E 49 16-G A H10	JIS Z 3214-2012	E4916-NCC1
AWS A5.5-2014	E7016-G		

Description

- Covering is low hydrogen type for welding of 490MPa class high tensile strength weathering type structural steel for vehicles, building and bridges.
- Excellent weather-proof property and crack resistance.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu
0.06	0.46	0.74	0.018	0.009	0.63	0.52	0.01	0.01	0.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	450	610	28	70	50	AW

* AW : As-Welded

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
(A)	V · OH	70~110	120~160	130~170	

KW-50V

For atomospheric corrosion resisting steel

Classifications

AWS A5.5-2014	E7016-G
KS D 7101-2002	DA5016G
JIS Z 3214-2012	E4916-CC

Description

- Covering is low hydrogen type for vertical-down welding of 490MPa class high tensile strength weathering type structural steel for vehicles, building and bridges.
- Excellent working efficieny in vertical-down welding.
- Excellent weather-proof property and crack resistance.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu
0.06	0.54	0.86	0.015	0.011	0.60	0.51	0.01	0.01	0.27

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
JIS Z 3214	min. 390	min. 490	min. 23	≥ 47		
Example	440	540	32	100	50	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

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

KW-50WH

For atomospheric corrosion resisting steel

Classifications

KS D 7101-2002 DA5026W
JIS Z 3214-2012 E4928-NCC1

Description

- Covering is low hydrogen, iron powder type for flat and horizontal fillet welding of 490MPa class high tensile strength weathering type structural steel for buildings, bridges and other steel structures.
- Extremely high deposition rate and easy slag removal.
- Quiet and stable arc.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.07	0.30	0.92	0.015	0.012	0.53	0.51	0.01	0.39

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -30℃	Remarks
JIS Z 3214	min. 390	min. 490	min. 23	≥ 47		
Example	510	560	27	65	40	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	4.0	5.0	5.5	6.0
Length	(mm)	400	450	450	450
			500	500	500
			550	550	550
Amp. (A)	F H-Fillet	160~200	200~250	220~270	250~300

KW-60G

For atomospheric corrosion resisting steel

Classifications

EN ISO 2560-A:2006	E 50 0 Z B 12	KS D 7101-2002	DA5816W
EN ISO 2560-B:2006	E 55 16-G A	JIS Z 3214-2012	E5516-NCC1
AWS A5.5-2014	E8016-G		

Description

- Covering is low hydrogen type for welding of 560MPa class high tensile strength weathering type structural steel for buildings, bridges and other steel structures.
- Excellent weather-proof property and crack resistance.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.07	0.65	0.75	0.016	0.011	0.62	0.53	0.01	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 2560-A	min. 500	560~720	min. 18	≥ 47		
Example	530	590	24	100	70	AW

* AW : As-Welded

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
(A)	V · OH	70~110	120~160	130~170	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018W

For atomospheric corrosion resisting steel

Classifications

EN ISO 2560-A:2006	E 46 2 Z B 32 H10	JIS Z 3214	E5518-NCC1
EN ISO 2560-B:2006	E 55 18-NCC1 A U H10		
AWS A5.5-2014	E8018-W2		

Description

- Covering is low hydrogen, iron powder type for welding of 560MPa class high tensile strength weathering type structural steel for buildings, bridges and other steel structures. (ASTM A67 Gr.1 ; A242 Gr.all ; A588 Gr.all ; A606 Gr.all ; A709 Gr.70W)
- Excellent weather-proof properties and crack resistance of the deposited weld metal.
- Good weldability and usability.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.05	0.47	0.70	0.015	0.015	0.69	0.54	0.01	0.45

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19	≥ 27J		
EN ISO 2560-A	min. 460	530~680	min. 20	≥ 47		
Example	530	590	24	80	60	AW

* AW : As-Welded

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	70~110	90~130	150~190	180~230
(A)	V · OH	60~90	70~110	120~160	130~170

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KA-50G

For 490MPa corrosion resisting steel against sulfic acid

Classifications

EN ISO 2560-A:2006	E 42 0 Z B 12 H10	JIS Z 3211-2008	E4916-NC
EN ISO 2560-B:2006	E 49 16-G A H10		
AWS A5.5-2014	E7016-G		

Description

- It is designed for the mild and medium tensile steels that are used to flue gasdesulfurization facilities.
- The weld metal contain Cu, Co alloy and has good anticorrosion against sulfic acid.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Cu	Co
0.05	0.41	0.62	0.015	0.011	0.30	0.13

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	T.S 500℃ (MPa)	IV (J) 0℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20			
Example	520	605	30	430	50	AW

* AW : As-Welded

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	350	400	400	450
Amp.	F	70~110	90~130	150~190	180~230
(A)	V · OH	60~90	70~110	120~160	130~170

KK-50N

For low temperature service steel (490MPa)

Classifications

EN ISO 2560-A:2006	E 42 3 Z B 12 H10	KS D 7023-2002	DL5016-4A0
EN ISO 2560-B:2006	E 49 16-G A H10	JIS Z 3211-2008	E4916-G
AWS A5.5-2014	E7016-G		

Description

- Covering is low hydrogen type for welding of aluminium-killed steel to be used for LPG tankers, LPG storage tanks, machineries and structures.
- Excellent notch toughness of deposited weld metal at low temperature.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.42	1.35	0.014	0.011	0.47	0.02	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -45℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	490	570	30	130	90	AW

* AW : As-Welded

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. (A)	F	50~100	70~130	150~190	220~250	250~310
	V · OH	30~80	70~100	120~160	150~200	

Approvals

DNV-GL, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KK-50NN

For low temperature service steel (490MPa)

Classifications

EN ISO 2560-A:2006	E 42 5 Z B 12 H10	KS D 7023-2002	DL5016-6A1
EN ISO 2560-B:2006	E 49 16-G A H10	JIS Z 3211-2008	E4916-G
AWS A5.5-2014	E7016-G		

Description

- Covering is low hydrogen type for welding of aluminium-killed steel to be used for LPG tankers, and LPG storage tanks, etc.
- Excellent notch toughness of deposited weld metal at low temperature.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.37	1.45	0.013	0.01	1.37	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -60℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	520	590	28	120	100	AW

* AW : As-Welded

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
(A)	V · OH	30~80	70~100	120~160	130~200	

K-8016C1

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 6 2Ni B 12 H10	KS D 7023-2002	DL5016-6P2
EN ISO 2560-B:2006	E 55 16-N5 P U H10	JIS Z 3211-2008	E5516-N5 P U
AWS A5.5-2014	E8016-C1		

Description

- Covering is low hydrogen type for welding of 2.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Excellent impact value at -60°C.
- Good weldability and usability.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.45	0.98	0.016	0.013	2.25	0.03	0.02	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -60℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 47	
Example	520	600	30	140	120	PWHT

* PWHT : 605℃x1Hr.

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
(A)	V · OH	50~80	100~140	120~170	150~200	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018C1

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 6 2Ni B 32 H10	JIS Z 3211-2008	E5518-N5 P U
EN ISO 2560-B:2006	E 55 18-N5 P U H10		
AWS A5.5-2014	E8018-C1		

Description

- Covering is low hydrogen, iron powder type for welding of 2.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Stable arc in flat and horizontal fillet welding.
- Weld metal of fine ripple mark without undercut can be obtained.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.60	0.96	0.015	0.012	2.41	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -60℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 47	
Example	500	600	32	120	100	PWHT

* PWHT : 605℃x1Hr.

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
(A)	V · OH	60~90	85~120	110~160		

Approvals

ABS, DNV-GL, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8016C2

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 6 3Ni B 12 H10	KS D 7023-2002	DL5016-6P3
EN ISO 2560-B:2006	E 55 16-N7 P H10	JIS Z 3211-2008	E5516-N7 P
AWS A5.5-2014	E8016-C2		

Description

- Covering is low hydrogen type for welding of 3.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Excellent impact value at -75°C.
- Good weldability and usability.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.45	1.10	0.014	0.011	3.46	0.04	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -75℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 27	
Example	500	610	30	70	55	PWHT

* PWHT : 605℃x1Hr.

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
(A)	V · OH	50~80	80~120	110~160	150~200	

K-8018C2

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 6 3Ni B 32 H10	JIS Z 3211-2008	E5518-N7 P
EN ISO 2560-B:2006	E 55 18-N7 P H10		
AWS A5.5-2014	E8018-C2		

Description

- Covering is low hydrogen, iron powder type for welding of 3.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Fast, efficient metal transfer in all positions.
- Excellent notch toughness of the deposited weld metal at low temperature.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.32	1.12	0.013	0.012	3.45	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -75℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-B	min. 460	min. 550	min. 17		≥ 27	
Example	530	620	28	55	40	PWHT

* PWHT : 605℃x1Hr.

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
(A)	V · OH	50~80	80~120	110~170		

K-8018C3

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 4 1Ni B 32 H10	JIS Z 3211-2008	E5518-N2 U
EN ISO 2560-B:2006	E 55 18-N2 A U H10		
AWS A5.5-2014	E8018-C3		

Description

- Covering is low hydrogen, iron powder type for welding of 1%Ni steel and high tensile strength steel for military and commercial applications where good impact property.
- Fast, efficient metal transfer in all positions.
- Excellent deposited weld metal with both AC and DC power source.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.45	0.91	0.013	0.012	1.03	0.02	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.5	470~550	min. 550	min. 24		≥ 27	
EN ISO 2560-A	min. 460	530~680	min. 20		≥ 47	
Example	530	600	28	100	60	AW

* AW : As-Welded

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
(A)	V · OH	60~90	80~120	110~170	

Approvals

ABS, LR

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7018C3L

For low temperature service steel (490MPa)

Classifications

EN ISO 2560-A:2006	E 42 3 1Ni B 32 H5	JIS Z 3211-2008	E4918-N2 H5
EN ISO 2560-B:2006	E 49 18-N2 A H5		
AWS A5.5-2014	E7018-C3L H4R		

Description

- Covering is low hydrogen, iron powder type for welding of 1%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Fast, efficient metal transfer in all positions and very low hydrogen content. (HD ≤4ml/100g)
- Excellent notch toughness of the deposited weld metal at low temperature.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.05	0.31	0.86	0.016	0.016	1.01	0.05	0.02	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22		≥ 27	
EN ISO 2560-A	min. 420	500~640	min. 20	≥ 47		
Example	530	620	34	90	50	AW

* AW : As-Welded

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	90~140	150~190	180~230
(A)	V · OH	50~80	80~120	120~160	

K-7018G

For low temperature service steel (490MPa)

Classifications

EN ISO 2560-A:2006	E 42 5 1Ni B 32 H5	JIS Z 3211-2008	E4918-G H5
EN ISO 2560-B:2006	E 49 18-G A H5		
AWS A5.5-2014	E7018-G H4R		

Description

- Covering is low hydrogen, iron powder type for welding of 1%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Fast, efficient metal transfer in all positions and very low hydrogen contens. (HD ≤4ml/100g)
- Excellent notch toughness of the deposited weld metal at low temperature.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.04	0.24	0.91	0.016	0.016	1.01	0.05	0.02	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 2560-A	min. 420	500~640	min. 20		≥ 47	
Example	520	600	34	100	70	AW

* AW : As-Welded

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	90~140	150~190	180~230
(A)	V · OH	50~80	80~120	120~160	

K-8016C4H

For low temperature service steel (560MPa)

Classifications

EN ISO 2560-A:2006	E 46 5 Z B 12 H5	JIS Z 3211-2008	E5516-N3 U H5
EN ISO 2560-B:2006	E 55 16-N3 A U H5		
AWS A5.5-2014	E8016-C4 H4		

Description

- Covering is low hydrogen, iron powder type for welding of 1.5%Ni steel and aluminium-killed steel used at low temperature, LPG tanks, etc.
- Excellent notch toughness of the deposited weld metal at low temperature.
- Good weldability and usability and very low hydrogen content. (HD ≤4ml/100g)
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.56	0.85	0.013	0.011	1.26	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -50℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19		≥ 27	
EN ISO 2560-A	min. 460	530~680	min. 20		≥ 47	
Example	530	600	28	110	70	AW

* AW : As-Welded

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	90~140	150~190	180~230
(A)	V · OH	50~80	80~120	120~160	

K-7010A1

For heat-resisting steel (0.5%Mo)

Classifications

EN ISO 3580-B:2008	E 49 10-1M3	JIS Z 3223-2010	E4910-1M3
AWS A5.5-2014	E7010-A1		

Description

- Covering is high cellulose type for all positions welding of 0.5%Mo steel pipes used for high pressure, high temperature steam service, structural steel and plates or castings.
- Extremely good radiographic soundness and mechanical properties.
- Not to use the currents exceeding the recommended currents.
- Redry the electrode at 70~80°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.09	0.14	0.43	0.015	0.009	0.05	0.06	0.58	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 3580-B	min. 390	min. 490	min. 20			
Example	440	550	29	60	50	PWHT

* PWHT : 620℃x1Hr.

Sizes available and recommended currents (DC+)

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

Approvals

ABS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-7016A1

For heat-resisting steel (0.5%Mo)

Classifications

EN ISO 3580-A:2008	E Mo B 12 H10	KS D 7022-2002	DT1216
EN ISO 3580-B:2008	E 49 16-1M3 H10	JIS Z 3223-2010	E4916-1M3
AWS A5.5-2014	E7016-A1		

Description

- Covering is low hydrogen type for welding of alloys used for hign temperature service such as C-Mo steel pipes(STPA 12, A335-P1), boiler and heat exchanger steel tubes, rolled steel and cast steel.
- Preheat at 100~200°C and postheat treat at 620~680°C.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.54	0.83	0.015	0.009	0.02	0.03	0.52	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) -0℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 3580-A	min. 355	min. 510	min. 22	≥ 47		
Example	560	650	31	120	100	PWHT

* PWHT : 620℃x1Hr.

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
(A)	V · OH	50~80	80~120	110~170	130~200	

K-7018A1

For heat-resisting steel (0.5%Mo)

Classifications

EN ISO 3580-A:2008	E Mo B 32 H10	JIS Z 3223-2010	E4918-1M3
EN ISO 3580-B:2008	E 49 18-1M3 H10		
AWS A5.5-2014	E7018-A1		

Description

- Covering is low hydrogen, iron powder type for welding of alloys steel of 490MPa minimum yield point 0.5%Mo steel of pressure pipe, casting and general fabrication of pressure vessel.
- Preheat at 100~200°C and postheat treat at 620~680°C.
- High deposition rate in all positions.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.49	0.72	0.015	0.011	0.02	0.03	0.53	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 390	min. 490	min. 22			
EN ISO 3580-A	min. 355	min. 510	min. 22	≥ 47		
Example	590	680	28	130	110	PWHT

* PWHT : 620℃x1Hr.

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
(A)	V · OH	50~80	70~110	100~160		

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8016B1

For heat-resisting steel (0.5%Cr-0.5%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo0.5 B 12 H10	JIS Z 3223-2010	E5516-CM
EN ISO 3580-B:2008	E 55 16-CM H10		
AWS A5.5-2014	E8016-B1		

Description

- Covering is low hydrogen type for welding of 0.5%Cr-0.5%Mo steel used high temperature high pressure boilers, chemical equipment and oil refining plants.(A335-P2, A213-T2)
- Preheat at 150~250°C and postheat treat at 620~680°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.07	0.51	0.81	0.014	0.01	0.02	0.51	0.49	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) -0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-A	min. 355	min. 510	min. 22	≥ 47		
Example	590	670	26	70	50	PWHT

* PWHT : 690℃x1Hr.

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
(A)	V · OH	40~80	80~120	100~160	130~200	

K-8016B2

For heat-resisting steel (1.25%Cr-0.5%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo1 B 12 H10	KS D 7022-2002	DT2316
EN ISO 3580-B:2008	E 55 16-1CM H10	JIS Z 3223-2010	E5516-1CM
AWS A5.5-2014	E8016-B2		

Description

- Covering is low hydrogen type for welding of 1.25%Cr-0.5%Mo steel used for super-heater tubes, steam pipes, heaters of boilers for thermoelectric power plant and equipments oil refining industries.
- Preheat at 150~300°C and postheat treat at 680~730°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.47	0.65	0.014	0.012	0.03	1.31	0.52	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-A	min. 355	min. 510	min. 22	≥ 47		
Example	590	670	25	80	65	PWHT

* PWHT : 690℃x1Hr.

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
(A)	V · OH	50~80	75~110	100~160		

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8018B2

For heat-resisting steel (1.25%Cr-0.5%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo1 B 32 H10	KS D 7022-2002	DT2318
EN ISO 3580-B:2008	E 55 18-1CM H10	JIS Z 3223-2010	E5518-1CM
AWS A5.5-2014	E8018-B2		

Description

- Covering is low hydrogen, iron powder type for welding of 1.25%Cr-0.5%Mo steel used for steam pipes of boilers, oil refining industries, pressure vessels for high temperature service.
- Preheat at 150~300°C and postheat treat at 680~730°C.
- High deposition rate in all positions.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.61	0.70	0.014	0.011	0.02	1.32	0.55	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-A	min. 355	min. 510	min. 22	≥ 47		
Example	590	670	25	80	65	PWHT

* PWHT : 690℃x1Hr.

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. (A)	F	65~95	90~130	130~190	190~250	250~300
	V · OH	60~90	80~120	110~170		

Approvals

ABS, DNV-GL, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-9016B3

For heat-resisting steel (2.25%Cr-1%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo2 B 12 H10	KS D 7022-2002	DT2416
EN ISO 3580-B:2008	E 62 16-2C1M H10	JIS Z 3223-2010	E6216-2C1M
AWS A5.5-2014	E9016-B3		

Description

- Covering is low hydrogen type for welding of 2.25%Cr-1%Mo steel used for super-heater tubes, steam pipes, heaters of boilers for thermoelectric power plant and equipments oil refining industries.
- Preheat at 150~300°C and postheat treat at 680~730°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.45	0.78	0.016	0.011	0.03	2.37	1.03	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 530	min. 620	min. 17			
EN ISO 3580-A	min. 400	min. 500	min. 18	≥ 47		
Example	620	710	24	55	40	PWHT

* PWHT : 690℃x1Hr.

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
(A)	V · OH	60~90	75~115	110~170	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-9018B3

For heat-resisting steel (2.25%Cr-1%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo2 B 32 H10	KS D 7022-2002	DT2418
EN ISO 3580-B:2008	E 62 18-2C1M H10	JIS Z 3223-2010	E6218-2C1M
AWS A5.5-2014	E9018-B3		

Description

- Covering is low hydrogen, iron powder type for all positions welding of 2.25%Cr-1%Mo steel used for steam pipe of boilers, oil refining industries, pressure vessels for high temperature service.
- Preheat at 150~300°C and postheat treat at 680~730°C.
- High deposition rate in all positions.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.50	0.77	0.018	0.011	0.03	2.25	1.02	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 530	min. 620	min. 17			
EN ISO 3580-A	min. 400	min. 500	min. 18	≥ 47		
Example	680	750	21	50	35	PWHT

* PWHT : 690℃x1Hr.

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
(A)	V · OH	60~90	80~120	110~170	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8015B6

For heat-resisting steel (5%Cr-0.5%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo5 B 22 H10	KS D 7022-2002	DT2516
EN ISO 3580-B:2008	E 55 15-5CM H10	JIS Z 3223-2010	E5515-5CM
AWS A5.5-2014	E8015-B6		

Description

- Covering is low hydrogen type for welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries, heat treated high tensile strength steel for aircraft part such as SAE 4130.
- Preheat at 250~350°C and postheat treat at 750~850°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.35	0.84	0.017	0.012	0.04	5.25	0.55	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-A	min. 400	min. 500	min. 17	≥ 47		
Example	670	720	23	60	50	PWHT

* PWHT : 740℃x1Hr.

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
(A)	V · OH	50~80	70~110	90~130		

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8016B6

For heat-resisting steel (5%Cr-0.5%Mo)

Classifications

EN ISO 3580-A:2008	E CrMo5 B 12 H10	KS D 7022-2002	DT2516
EN ISO 3580-B:2008	E 55 16-5CM H10	JIS Z 3223-2010	E5516-5CM
AWS A5.5-2014	E8016-B6		

Description

- Covering is low hydrogen type for welding of 5%Cr-0.5%Mo steel used in oil refining and chemical industries, heat treated high tensile strength steel for aircraft part such as SAE 4130.
- Preheat at 250~350°C and postheat treat at 750~850°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.06	0.43	0.57	0.018	0.012	0.04	4.98	0.51	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-A	min. 400	min. 500	min. 17	≥ 47		
Example	680	740	22	55	45	PWHT

* PWHT : 740℃x1Hr.

Sizes available and recommended currents (AC or DC+)

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

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-8015B8

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

Classifications

EN ISO 3580-B:2008	B E 62 15-9C1M H10	KS D 7022-2002	DT2616
AWS A5.5-2014	E8015-B8	JIS Z 3223-2010	E5515-9C1M

Description

- Covering is low hydrogen type for welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipments.
- Preheat at 250~350°C and postheat treat at 750~850°C because of high self-hardening property of the deposited weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.45	0.88	0.018	0.011	0.03	8.86	0.95	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-B	min. 530	min. 620	min. 15			
Example	670	760	22	45	40	PWHT

* PWHT : 740℃x1Hr.

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
(A)	V · OH	50~60	70~110	90~150		

K-8016B8

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

Classifications

EN ISO 3580-B:2008	B E 62 16-9C1M H10	KS D 7022-2002	DT2616
AWS A5.5-2014	E8016-B8	JIS Z 3223-2010	E5516-9C1M

Description

- Covering is low hydrogen type for welding of super-heater tubes of high temperature and high pressure boilers, heater tubes of oil refining equipments.
- Preheat at 250~350°C and postheat treat at 750~850°C because of high self-hardening property of the deposited weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V
0.08	0.74	0.98	0.020	0.013	0.03	8.48	0.90	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 460	min. 550	min. 19			
EN ISO 3580-B	min. 530	min. 620	min. 15			
Example	690	780	21	50	45	PWHT

* PWHT : 740℃x1Hr.

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	80~120	120~160	160~220	210~260
(A)	V · OH	50~80	70~110	90~150		

K-9015B9

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

Classifications

EN ISO 3580-A:2008	E CrMo91 B 42 H5	JIS Z 3223-2010	E6215-9C1MV
EN ISO 3580-B:2008	E 62 15-9C1MV H5		
AWS A5.5-2014	E9015-B91 H4R		

Description

- Covering is low hydrogen type for welding of 9%Cr-1%Mo-Nb-V steel used in oil refining and chemical industries, heat treated high tensile strength steel for P91.
- Preheat at 250~350°C and postheat treat at 720~770°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	V	Nb
0.09	0.27	0.62	0.01	0.01	0.28	8.92	1.08	0.22	0.08

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 530	min. 620	min. 17			
EN ISO 3580-A	min. 415	min. 585	min. 17	≥ 47		
Example	680	760	21	60	40	PWHT

* PWHT : 760℃x2Hr.

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
(A)	V · OH	50~80	70~110	90~130		

K-9015B9W

For heat-resisting steel (9%Cr-0.5%Mo-Nb-W)

Classifications

AWS A5.5-2014	E9015-B92 H4R
JIS Z 3223-2010	E6215-G

Description

- Covering is low hydrogen type for welding of 9%Cr-0.5%Mo-Nb-W steel used in oil refining and chemical industries, heat treated high tensile strength steel for P92.
- Preheat at 250~350°C and postheat treat at 720~770°C.
- Excellent crack resistance because of low hydrogen contents.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W	Nb
0.11	0.27	0.62	0.01	0.01	0.26	8.93	0.51	1.72	0.05

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
AWS A5.5	min. 530	min. 620	min. 17			
Example	670	780	20	50	35	PWHT

* PWHT : 760℃x2Hr.

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
(A)	V · OH	50~80	70~110	90~130		

KM-100

For hardfacing (Hv 250)

Classifications

EN 14700:2005	E Fe 1
KS D 7035-2002	DF2A-250-R
JIS Z 3251-2000	DF2A-250-R

Description

- Covering is high titania type for hardfacing of shafts, tires, gears, crane wheels, etc.
- Easy slag removal.
- Beautiful, smooth bead appearaqnce.
- Extremely machinable the deposited weld metal.
- Preheat at 150~200°C only for low alloy steel and high carbon steel.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.11	0.42	0.98	0.016	0.013	0.02	0.03	0.01	0.01

Typical mechanical properties 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. (A)	F	80~120	140~170	170~210	200~250

KM-250

For hardfacing (Hv 250)

Classifications

EN 14700:2005	E Fe 1
KS D 7035-2002	DF2A-250-B
JIS Z 3251-2000	DF2A-250-B

Description

- Covering is low hydrogen type for hardfacing and repairing of worn parts such as shafts, gears, wheels, etc.
- Stable arc, smooth bead appearance and easy slag removal.
- High abrasion resistance and impact resistance.
- Good machinable the deposited weld metal.
- Preheat at 150~200°C only for multilayer welding of low alloy steell and high carbon steel.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.18	0.69	2.28	0.013	0.009	0.02	0.03	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 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. (A)	F	90~130	140~180	180~240	220~300

KM-300R

For hardfacing (Hv 300)

Classifications

KS D 7035-2002 DF2A-300-R
JIS Z 3251-2000 DF2A-300-R

Description

- Covering is high titania type for hardfacing of shaft, roller, spindle, crane wheel, etc.
- Excellent slag removal and smooth bead appearance.
- Good machinable the deposited weld metal.
- Preheat at 150°C only for multilayer welding of low alloy steell and high carbon steel.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.20	0.28	0.30	0.025	0.022	0.03	2.40	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 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. (A)	F	80~130	140~180	170~240	240~300

KM-300

For hardfacing (Hv 300)

Classifications

EN 14700:2005	E Fe 1
KS D 7035-2002	DF2A-300-B
JIS Z 3251-2000	DF2A-300-B

Description

- Covering is low hydrogen type for hardfacing of shafts, roller, spindle, crane wheel, etc.
- Good usability.
- High abrasion resistance and impact resistance.
- Good machinable the deposited weld metal.
- Preheat at 150°C only for multilayer welding of low alloy steell and high carbon steel.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.20	0.60	1.48	0.018	0.011	0.02	0.70	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 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. (A)	F	80~130	140~180	170~240	240~300

KM-100C

For hardfacing (Hv 350)

Classifications

EN 14700:2005	E Fe 1
KS D 7035-2002	DF2A-350-R
JIS Z 3251-2000	DF2A-350-R

Description

- Covering is high titania type for hardfacing of shaft and clutch lugs, etc.
- Easy slag removal and smooth bead appearance.
- Extremely machinable the deposited weld metal.
- Preheat at 150°C and over only for cast steel, low alloy steell and high carbon steel.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.19	0.44	0.74	0.015	0.011	0.02	2.60	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 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. (A)	F	90~120	140~170	190~230	220~280

KM-350

For hardfacing (Hv 350)

Classifications

KS D 7035-2002	DF2B-350-B
JIS Z 3251-2000	DF2B-350-B

Description

- Covering is low hydrogen type for hardfacing of fans, upper rollers, shafts and sprockets.
- Machining is possible in general.
- Hardness increases by quenching after machining.
- Suitable for intermetallic abrasion and moderate impact abrasion.
- Redry the electrode at 300~400℃ for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.36	0.65	0.74	0.014	0.011	0.02	2.00	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 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. (A)	F	90~130	140~180	190~240	220~300

KM-350R

For hardfacing (Hv 350)

Classifications

KS D 7035-2002 DF2A-350-R
JIS Z 3251-2000 DF2A-350-R

Description

- Covering is high titania type for hardfacing of shaft and clutch lugs, etc.
- Machining is possible in general.
- Hardness increases by quenching after machining.
- Suitable for intermetallic abrasion and moderate impact abrasion.
- Redry the electrode at 70~100°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.12	0.92	1.40	0.021	0.004	0.014	2.74	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	Heat treated	
	Interpass temp. 150℃	900℃ oil quenching	650℃ stress relief
HV	356	420	310
HRC	37	43	31
HS	50	57	43

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. (A)	F	90~130	140~180	190~240	220~300

KM-500

For hardfacing (Hv 450)

Classifications

KS D 7035-2002 DF2B-450-B
JIS Z 3251-2000 DF2B-450-B

Description

- Covering is low hydrogen type for hardfacing of idlers, rollers, bulldozer blades, sprockets, caterpillar links, crushers, dipper teeth and conveyors, etc.
- The deposited weld metal has typical martensite structure and high grade of hardness and ductility as welded.
- Machining is impossible as welded.
- Preheat at 150°C and over in general.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.38	0.84	1.56	0.014	0.011	0.02	2.52	0.03	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded		Hea treated (furnace cooling)	
	Interpass temp. 150℃	Interpass temp. 300℃	550℃X6Hr.	625℃X6Hr.
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. (A)	F	80~120	130~170	170~230	220~280

KM-700

For hardfacing (Hv 700)

Classifications

KS D 7035-2002 DF2B-700-B
JIS Z 3251-2000 DF2B-700-B

Description

- Covering is low hydrogen type for hardfacing of cutter knives, dredger and mixer.
- The deposited weld metal has martensite structure.
- In the case of multilayer build-up welding base plates of hardening properties, under-laying with low hydrogen type carbon steel electrode.
- Preheat at 150°C and over in general.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.48	1.42	1.36	0.015	0.012	0.03	3.65	0.02	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded		Heat treated
	Interpass temp. 200℃	Interpass temp. 300℃	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. (A)	F	90~130	140~170	190~240	220~300

KM-700R

For hardfacing (Hv 700)

Classifications

KS D 7035-2002	DF3B-700-R
JIS Z 3251-2000	DF3B-700-R

Description

- Covering is high titania type for hardfacing of cutter knives, dredger and mixer.
- The deposited weld metal has martensite structure.
- In the case of multilayer build-up welding base plates of hardening properties, under-laying with low hydrogen type carbon steel electrode.
- Preheat at 150°C and over in general.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.30	0.78	0.52	0.019	0.008	0.04	7.09	1.87	0.03

Typical mechanical properties of all-weld metal

Conditions	As welded		Heat treated
	Interpass temp. 200℃	Interpass temp. 300℃	600℃ stress relief
HV	720	697	615
HRC	61	60	56
HS	83	81	75

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. (A)	F	90~130	140~170	190~240	220~300

KSB-2

For hardfacing (High Cr, Hv 600)

Classifications

KS D 7035-2002 DF3B-600-BR
JIS Z 3251-2000 DF3B-600-BR

Description

- Covering is lime titania type for hardfacing of dies, clutch cams and metal mould.
- Excellent working efficiency.
- Excellent slag removal and restriking properties.
- Excellent heat-resisting, crack-resisting, wear-resisting and impact-resisting properties.
- In the case of multilayer build-up welding base plates of hardening properties, under-laying with low hydrogen type carbon steel electrode.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	V	W
0.50	0.09	0.52	0.021	0.012	0.04	6.1	0.4	1.8

Typical mechanical properties of all-weld metal

Conditions	Continuous surfacing	As welded Interpass temp. 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. (A)	F	80~100	120~150	160~200

KM-800

For hardfacing (Hv 700)

Classifications

KS D 7035-2002 DF3C-700-B
JIS Z 3251-2000 DF3C-700-B

Description

- Covering is low hydrogen type for hardfacing of impellers, pump casings.
- The deposited weld metal has an extremely hard martensite structure.
- Machining is impossible as welded.
- Preheat at 200°C and over.
- Postheat treat at about 600°C immediately after welding.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.47	1.45	1.51	0.017	0.012	0.03	4.1	0.02	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded		Heat treated
	Interpass temp. 150℃	Interpass temp. 200℃	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. (A)	F	90~130	140~170	190~240	220~300

KM-800D

For Cement industry

Classifications

DIN 8555 E6-UM-60

Description

- Covering is low hydrogen type for hardfacing of impellers, pump casings.
- The deposited weld metal has an extremely hard martensite structure.
- Machining is impossible as welded.
- Preheat at 200°C and over.
- Postheat treat at about 600°C immediately after welding.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo
0.56	1.93	0.36	0.011	0.004	10.32	0.05	0.02

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Interpass temp. 150℃	Interpass temp. 200℃
HV	702	760
HRC	60.2	62.8

Sizes available and recommended currents (AC or DC+)

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

KM-11Cr

For hardfacing (Hign Cr, Hv 500)

Classifications

KS D 7035-2002	DF4B-500-B
JIS Z 3251-2000	DF4B-500-B

Description

- Covering is low hydrogen type for hardfacing of cold or hot shearer blade, liner pump casing generator water turbine, liner dredger.
- The deposited weld metal has the microstructure of martensite.
- Abrasion resisting properties is good at elevated temperature, so it is used for repairing of hot tool.
- Preheating is not necessary in general, but preheat at 150 and over only for high carbon steels and low alloy steels.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.40	1.28	0.46	0.025	0.010	0.35	11.2	1.40	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded Interpass temp. 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. (A)	F	90~110	110~150	150~200

KM-900

For hardfacing (Hv 700)

Classifications

KS D 7035-2002 DFMA-250-B
JIS Z 3251-2000 DFMA-250-B

Description

- Covering is high titania type for hardfacing of crushers, high manganese rails, buckets, bulldozer parts and build-upof parts subject to serene impact and abrasion.
- The deposited weld metal has austenite structure.
- Extremely ductile deposited weld metal.
- When the base metal of 13% Mn steel is hardened, cut off the hardened zone before welding.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.52	0.30	12.10	0.018	0.012	0.02	0.10	0.20	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded Interpass temp. 150℃	Work hardenability
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. (A)	F	90~130	140~180	190~240	220~300

KM-650

For Cement industry

Classifications

DIN 8555 E10-UM-60

Description

- Hardfacing of cutter knives, shovel teeth, cutter for coal, concrete cutters and earth drills.
- The deposited weld metal is harder than other kinds of deposited weld metal.
- Extremely excellent heavy soil abrasion resistance.
- The deposited weld metal has Cr-carbide alloy.
- Machining is impossible.
- Preheat at 200°C and high over.
- Postheat treat at about 600°C immediately after welding.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo
3.10	0.89	1.90	0.013	0.002	30.55	0.01	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Interpass temp. 150℃	Interpass temp. 200℃
HV	735	790
HRC	61.7	63.5

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	F	120~150	160~200	220~260

KM-680

For Cement industry

Classifications

DIN 8555 E10-UM-65

Description

- Hardfacing of cutter knives, shovel teeth, cutter for coal, concrete cutters and earth drills.
- The deposited weld metal is harder than other kinds of deposited weld metal.
- Extremely excellent heavy soil abrasion resistance.
- The deposited weld metal has Cr-carbide alloy.
- Machining is impossible.
- Preheat at 200°C and high over.
- Postheat treat at about 600°C immediately after welding.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Cr	Ni
4.20	0.46	2.60	0.010	0.010	32.4	0.01

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Interpass temp. 150℃	Interpass temp. 200℃
HV	786	841
HRC	63.5	65.6
HS	87	91

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	F	160~190	180~220	210~250

KM-1000

For hardfacing (Hv 800)

Classifications

KS D 7035-2002	DFWA-700-S
JIS Z 3251-2000	DFWA-700-S

Description

- Hardfacing of cutter knives, shovel teeth, cutter for coal, concrete cutters and earth drills.
- The deposited weld metal is harder than other kinds of deposited weld metal.
- Extremely excellent heavy soil abrasion resistance.
- The deposited weld metal has tungsten carbide alloy.
- Machining is impossible.
- Preheat at 300°C and high over.
- Postheat treat at about 600°C immediately after welding.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
2.98	0.60	1.88	0.022	0.014	0.04	0.02	0.01	48.0

Typical mechanical properties of all-weld metal

Conditions	As welded Interpass temp. max. 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. (A)	F	90~130	120~180	170~230

KQD-600

For hardfacing (High Cr&W, Hv 600)

Description

- Covering is low hydrogen type for hardfacing of press mould, forged metal mould, tool steel and hardened part by quenching.
- The microstructure of deposited weld metal has martensite.
- Excellent impact-resisting and wear-resisting properties at high temperature as well as room temperature.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.30	0.36	0.3	0.035	0.009	0.45	9.4	1.3	12.1

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Continuous surfacing	Interpass temp. max. 100℃
HV	580~620	590~610
HRC	54~56	55~56
HS	70~75	73~75

Sizes available and recommended currents (AC or DC+)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	F	70~90	100~120	130~170

KM-13CrM

For hardfacing (High Cr, Hv 300)

Description

- Covering is lime titania type for hardfacing of hot roller dies, tong punch and hot cutting knife, etc.
- The deposited weld metal has the microstructure of a fine carbide precipitation in austenite matrix.
- The high temperature hardness over 600°C is high, so it has execllent abrasion-resistance.
- Machining is possible in general.
- Good bead appearance and restriking properties, preheating is not necessary in general, but preheat at 150°C and over only for high carbon steels and low alloy steels.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.30	0.48	12.4	0.016	0.014	0.02	11.8	1.5	1.8

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. (A)	F	140~170	190~230

KBH-2

For hardfacing (High Cr, Hv 300)

Description

- Hardfacing of roller and shear used at elevated temperature, ingot tongs and forged metal mould.
- The deposited weld metal has the microstructure of carbide precipitation in the austenite matrix.
- Preheat at about 150°C and maintain the interpass tepmerature above 150°C for multilayer welding of low alloy steels and high carbon steel.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	W
0.29	0.15	1.25	0.015	0.012	8.2	16.4	45	5.4

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Continuous surfacing	Interpass temp. 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	400	400
Amp. (A)	F	100~120	120~150	150~180

KOSPEL-600H

For hardfacing (Hv 600)

Description

- Covering is low hydrogen type for hardfacing of metal mould, thermal cutting off machine, forging moule, dotting punch, compression tap, impact tap and axis of rotation.
- The microstructure of deposited weld metal has mertensite.
- Preheat at 200~300°C and postheat treat at 500~600°C, if possible.
- Keep up interpass temperature same as preheating temperature, if possible.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	V	W
0.25	0.59	0.95	0.018	0.013	0.02	2.5	1.0	4.2

Typical mechanical properties of all-weld metal

Conditions	As welded		Heat treated (Air cooling)			
	Continuous surfacing	Preheat and interpass temp. 150℃	350℃ X 2Hr	550℃ X 2Hr	650℃ X 2Hr	780℃ X 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	400	400	400
Amp. (A)	F	90~130	100~150	120~170	150~200

KOSPEL-800R

For hardfacing (Hv 800)

Description

- Covering is lime titania type for hardfacing of conveyor screw, caterpillar, crusher and dredger teeth.
- Excellent friction and impact abrasion resisting properties.
- Preheat at 200°C and postheat treat at 500~600°C.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	V	Mo
0.38	0.42	0.32	0.025	0.015	0.04	5.5	0.8	2.5

Typical mechanical properties of all-weld metal

Conditions	As welded	
	Continuous surfacing	Preheat and interpass tem. max 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)	350	350	400	400
Amp. (A)	F	80~140	90~160	120~180	140~200

KST-307-15

For stainless steel (19%Cr-9%Ni-5%Mn)

Classifications

AWS A5.4-2014	E307-15
KS D 7014-2008	E307-15
JIS Z 3221-2008	ES307-15

Description

- Welding of dissimilar steel such as austenitic manganese steel to carbon steel forgings. Joining workhardenable steels, armour plate, austenitic manganese steels, and heat-resisting steels for temperatures up to 350°C and dissimilar metals. Hardfacing of hot working tools, stainless valve steels and carbon steel items that must possess abrasion resistance in cold working.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.78	4.68	0.028	0.012	9.30	18.50	0.60	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 590	min. 30	
JIS Z 3221		min. 590	min. 25	
Example	470	650	48	AW

* AW : As-Welded

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
(A)	V · OH	45~60	70~90	90~130	

KST-308-15

For stainless steel (18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 B 22	KS D 7014-2008	E308-15
EN ISO 3581-B:2016	ES308-15	JIS Z 3221-2013	ES308-15
AWS A5.4-2014	E308-15		

Description

- Covering is lime type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Easy welding performance without hardening brittleness because of austenitic structure of the deposited weld metal.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.38	1.54	0.025	0.016	9.60	20.50	0.21	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 35	
EN ISO 3581-A	min. 350	min. 550	min. 30	
Example	480	600	38	AW

* AW : As-Welded

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
(A)	V · OH	35~45	40~60	70~100	90~130	

KST-308

For stainless steel (18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 R 12	KS D 7014-2008	E308-16
EN ISO 3581-B:2016	ES308-16	JIS Z 3221-2013	ES308-16
AWS A5.4-2014	E308-16		

Description

- Covering is lime titania type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Easy welding performance without hardening brittleness because of austenitic structure of the deposited weld metal.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.05	0.78	1.22	0.024	0.018	9.31	19.33	0.21	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 35	
EN ISO 3581-A	min. 350	min. 550	min. 30	
Example	470	620	45	AW

* AW : As-Welded

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
(A)	V · OH	35~45	40~60	70~100	90~130	

Approvals

ABS, BV, DNV-GL, KR, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-308L-15

For stainless steel (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 L B 22	KS D 7014-2008	E308L-15
EN ISO 3581-B:2016	ES308L-15	JIS Z 3221-2013	ES308L-15
AWS A5.4-2014	E308L-15		

Description

- Covering is lime type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Excellent welding dfficicncy because of high deposition rate.
- Remove water, rust, oil and all foreign matters from the groove prior to welding.
- Preheating is not necessary in general.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.41	1.67	0.022	0.015	9.71	20.02	0.21	0.30	10.7

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 520	min. 35			
EN ISO 3581-A	min. 320	min. 510	min. 30			
Example	430	590	44	65	25	AW

* AW : As-Welded

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	140~180
(A)	V · OH	35~45	40~60	70~90	90~130	

KST-308LB

For stainless steel (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 L B 22	KS D 7014-2008	E308L-15
EN ISO 3581-B:2016	ES308L-15	JIS Z 3221-2013	ES308L-15
AWS A5.4-2014	E308L-15		

Description

- Covering is lime type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Excellent welding dfficicncy because of high deposition rate.
- Remove water, rust, oil and all foreign matters from the groove prior to welding.
- Preheating is not necessary in general.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.70	1.76	0.024	0.004	10.06	18.86	0.10	0.30	4.9

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 520	min. 35			
EN ISO 3581-A	min. 320	min. 510	min. 30			
Example	410	590	44	65	34 (0.42)	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0
Length	(mm)	300	350	350
Amp.	F	55~80	90~130	110~150
(A)	V · OH	40~60	70~90	90~130

KST-308L

For stainless steel (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 L R 12	KS D 7014-2008	E308L-16
EN ISO 3581-B:2016	ES308L-16	JIS Z 3221-2013	ES308L-16
AWS A5.4-2014	E308L-16		

Description

- Covering is lime titania type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Excellent welding dfficicncy because of high deposition rate.
- Remove water, rust, oil and all foreign matters from the groove prior to welding.
- Preheating is not necessary in general.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.73	0.65	0.028	0.012	10.07	18.86	0.21	0.30	5.3

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 520	min. 35			
EN ISO 3581-A	min. 320	min. 510	min. 30			
Example	430	600	44	65	25	AW

* AW : As-Welded

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
(A)	V · OH	35~45	40~60	70~90	90~130	

Approvals

ABS, BV, DNV-GL, LR, CWB, TUV, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-308L-17

For stainless steel (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 L R 12	KS D 7014-2008	E308L-16
EN ISO 3581-B:2016	ES308L-17	JIS Z 3221-2013	ES308L-17
AWS A5.4-02014	E308L-17		

Description

- Covering is lime titania type for welding of 18%Cr-8%Ni stainless steel. (AISI 301, 302, 304, 308)
- Excellent welding dfficiency because of high deposition rate.
- Remove water, rust, oil and all foreign matters from the groove prior to welding.
- Good usability with direct current applications.
- Preheating is not necessary in general.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.73	0.65	0.028	0.012	9.82	18.95	0.21	0.30	6.4

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 520	min. 35			
EN ISO 3581-A	min. 320	min. 510	min. 30			
Example	440	590	46	70	25	AW

* AW : As-Welded

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
(A)	V · OH	35~45	40~60	70~90	90~130	

KST-308H

For stainless steel (High C, 18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 19 9 H R 12	JIS Z 3221-2013	ES308H-16
EN ISO 3581-B:2016	ES308H-16		
AWS A5.4-2014	E308H-16		

Description

- Covering is lime titania type for welding of 18%Cr-8%Ni stainless steel and it is recommended to be use for high temperature(about 600°C) service. (STS 304H, 307H)
- Excellent creep resistance at elevated temperature.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.75	0.85	0.025	0.016	9.37	19.62	0.23	0.31

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 35	
EN ISO 3581-A	min. 350	min. 550	min. 30	
Example	480	600	38	AW

* AW : As-Welded

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	140~180
(A)	V · OH	40~70	60~90	90~130	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-308H-17

For stainless steel(18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2012	E 19 9 H R 12	JIS Z 3221-2013	ES308H-17
EN ISO 3581-B:2012	ES308H-17		
AWS A5.4-2012	E308H-17		

Description

- Covering is lime titania type for welding of 18%Cr-8%Ni stainless steel and it is recommended to be use for high temperature(about 600°C) service. (STS 304H, 307H)
- Excellent creep resistance at elevated temperature.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.67	0.75	0.03	0.02	9.92	19.07	0.05	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 35	
EN ISO 3581-A	min. 350	min. 550	min. 30	
Example	500	640	42	AW

* AW : As-Welded

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	80~110	110~150	140~180
(A)	V · OH	40~60	70~100	90~130	

KST-308Mo

For stainless steel (18%Cr-8%Ni-2.5%Mo)

Classifications

EN ISO 3581-A:2016	E 20 10 3 R 12	KS D 7014-2008	E308Mo-16
EN ISO 3581-B:2016	ES308Mo-16	JIS Z 3221-2013	ES308Mo-16
AWS A5.4-2014	E308Mo-16		

Description

- Covering is lime titania type for butt and fillet welding of ASTM CF8M stainless steel castings. Used for welding wrought materials such as Type 316L stainless when increased ferrite is desired.
- Good heat resistance and corrosion resistance.
- Welds are carefully cleaned using a stainless steel wire brush.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.05	0.36	1.42	0.024	0.016	9.42	19.87	2.10	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 35	
EN ISO 3581-A	min. 400	min. 620	min. 20	
Example	580	700	20	AW

* AW : As-Welded

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	55~80	70~110	110~150	140~180
(A)	V · OH	40~70	60~90	90~130	

KST-309-15

For stainless steel (Dissimilar joint welding)

Classifications

AWS A5.4-2014	E309-15
KS D 7014-2008	E309-15
JIS Z 3221-2013	ES309-15

Description

- Covering is lime type for welding of 22%Cr-12%Ni stainless steel and heat-resisting castings, clad side of type 304 clad steels.
- As the deposited weld metal contains ferrite in austenitic structure, its crack resistance is good.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.05	0.36	1.83	0.029	0.011	13.31	24.52	0.21	0.31

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
JIS Z 3221		min. 550	min. 25	
Example	450	590	40	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

KST-309

For stainless steel (Dissimilar joint welding)

Classifications

AWS A5.4-2014	E309-16
KS D 7014-2008	E309-16
JIS Z 3221-2013	ES309-16

Description

- Covering is lime titania type for 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.
- As the deposited weld metal contains ferrite in austenitic structure, its crack resistance is good.
- Good heat resistance and corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.72	1.36	0.028	0.012	12.61	23.63	0.20	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
JIS Z 3221		min. 550	min. 25	
Example	490	610	38	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-309L-15

For stainless steel (Dissimilar joint welding)

Classifications

EN ISO 3581-A:2016	E 23 12 L B 22	KS D 7014-2008	E309L-15
EN ISO 3581-B:2016	ES309L-15	JIS Z 3221-2013	ES309L-15
AWS A5.4-2014	E309L-15		

Description

- Covering is lime type for 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.
- 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.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.40	1.92	0.026	0.014	12.85	28.83	0.20	0.30	13.8

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 320	min. 510	min. 25	
Example	470	590	39	AW

* AW : As-Welded

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	110~150	140~180
(A)	V · OH	25~45	45~60	70~90	80~130	

KST-309L

For stainless steel (Dissimilar joint welding)

Classifications

EN ISO 3581-A:2016	E 23 12 L R 12	KS D 7014-2008	E309L-16
EN ISO 3581-B:2016	ES309L-16	JIS Z 3221-2013	ES309L-16
AWS A5.4-2014	E309L-16		

Description

- Covering is lime titania type for 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.
- 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.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.84	0.76	0.027	0.013	12.97	23.04	0.08	0.09	11.1

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 320	min. 510	min. 25	
Example	480	600	40	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

Approvals

ABS, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-309L-17

For stainless steel (Dissimilar joint welding)

Classifications

EN ISO 3581-A:2016	E 23 12 L R 12	KS D 7014-2008	E309L-16
EN ISO 3581-B:2016	ES309L-17	JIS Z 3221-2013	ES309L-17
AWS A5.4-2014	E309L-17		

Description

- Covering is lime titania type for 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.
- 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.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.84	0.76	0.027	0.013	12.95	23.14	0.08	0.09	11.2

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 320	min. 510	min. 25	
Example	460	580	46	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

KST-309Mo-15

For stainless steel (22%Cr-12%Ni-2.5%Mo)

Classifications

AWS A5.4-2014	E309Mo-15
KS D 7014-2008	E309Mo-15
JIS Z 3221-2013	ES309Mo-15

Description

- Build-up welding of Cr-Mo steel or carbon steel. Welding of AISI(SUS)316 clad steel or dissimilar steels.
- Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
- It is only used in the direct current condition.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.35	1.84	0.027	0.012	12.40	22.23	2.40	0.10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
JIS Z 3221		min. 550	min. 25	
Example	490	630	36	AW

* AW : As-Welded

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
(A)	V · OH	25~45	50~60	70~90	90~130	

KST-309Mo

For stainless steel (Dissimilar joint welding)

Classifications

AWS A5.4-2014	E309Mo-16
KS D 7014-2008	E309Mo-16
JIS Z 3221-2013	ES309Mo-16

Description

- Build-up welding of Cr-Mo steel or carbon steel. Welding of AISI(SUS)316 clad steel or dissimilar steels.
- Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
- It is only used in the direct current condition.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.78	1.47	0.025	0.013	12.43	23.18	2.30	0.10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
JIS Z 3221		min. 550	min. 25	
Example	500	630	34	AW

* AW : As-Welded

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
(A)	V · OH	40~60	70~90	90~130	

Approvals

DNV-GL

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-309LMo

For stainless steel (18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 23 12 2 L R 12	KS D 7014-2008	E309MoL-16
EN ISO 3581-B:2016	ES309LMo-16	JIS Z 3221-2013	ES309LMo-16
AWS A5.4-2014	E309LMo-16		

Description

- Build-up welding of AISI(SUS)316 clad steel or dissimilar steels.
- Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.03	0.76	1.78	0.026	0.013	13.02	22.84	2.15	0.12

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	490	650	32	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

Approvals

KR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-309LMoT

For stainless steel (18%Cr-8%Ni)

Classifications

EN ISO 3581-A:2016	E 23 12 2 L R 12
EN ISO 3581-B:2016	ES309LMo-17 (mod.)
AWS A5.4-2014	E309LMo-17 (mod.)

Description

- Build-up welding of AISI(SUS)316 clad steel or dissimilar steels.
- Excellent crack resistance especially in the welding of dissimilar steels such as stainless steel to carbon steel.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.02	0.76	0.82	0.026	0.013	13.12	22.78	2.75	0.10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	520	760	27	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

KST-309Nb

For stainless steel (Dissimilar joint welding)

Classifications

EN ISO 3581-A:2016	E 23 12 Nb R 12	KS D 7014-2008	E309Nb-16
EN ISO 3581-B:2016	ES309Nb-17	JIS Z 3221-2013	ES309Nb-16
AWS A5.4-2014	E309Nb-17		

Description

- Build-up welding of AISI(SUS)316 clad steel or dissimilar steels.
- Excellent intergranular corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Nb	Cu
0.037	0.81	0.93	0.029	0.011	12.60	23.06	0.81	0.25

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	480	620	37	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

KST-310

For stainless steel (25%Cr-20%Ni)

Classifications

EN ISO 3581-A:2016	E 25 20 R 12	KS D 7014-2008	E310-16
EN ISO 3581-B:2016	ES310-16	JIS Z 3221-2013	ES310-16
AWS A5.4-2014	E310-16		

Description

- Covering is lime titania type for welding of AISI(SUS) 310S, SCS 18 and clad side of 18%Cr-8%Ni stainless clad steel.
- The deposited weld metal has perfect austenitic structure.
- Good mechanical property and heat resistance of the depodited weld metal.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.11	0.40	1.86	0.025	0.013	20.82	25.59	0.12	0.09

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 20	
Example	490	620	40	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

Approvals

CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-312

For stainless steel (Cladding or Dissimilar joint)

Classifications

EN ISO 3581-A:2016	E 29 9 R 12	KS D 7014-2008	E312-16
EN ISO 3581-B:2016	ES312-16	JIS Z 3221-2013	ES312-16
AWS A5.4-2014	E312-16		

Description

- Covering is lime titania type for 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.
- Good crack resistance because of extremely much quantity of ferrite of the deposited weld metal.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.08	0.45	1.30	0.028	0.012	8.49	29.13	0.10	0.11

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 660	min. 22	
EN ISO 3581-A	min. 450	min. 650	min. 15	
Example	510	760	25	AW

* AW : As-Welded

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
(A)	V · OH	35~75	70~90	80~120	

TENSILE WELD

For stainless steel (Cladding or Dissimilar joint)

Description

- Covering is lime titania type for 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.
- Good crack resistance because of extremely much quantity of ferrite of the deposited weld metal.
- Good usability and weldability.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.08	0.95	1.48	0.032	0.015	8.65	29.83	0.13	0.09

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
Example	520	770	24	AW

* AW : As-Welded

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
(A)	V · OH	35~75	70~100	90~130	

KST-316-15

For stainless steel (18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 2 B 22	KS D 7014-2008	E316-15
EN ISO 3581-B:2016	ES316-15	JIS Z 3221-2013	ES316-15
AWS A5.4-2014	E316-15		

Description

- Covering is lime type for welding of 18%Cr-12%Ni-Mo stainless steel. (AISI 316) or dissimilar steels.
- Especially suitable for flat and horizontal fillet welding.
- Excellent corrosion resistance against sulphurous acid, phosphoric acid and acetic acid.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.39	1.18	0.029	0.013	11.59	18.88	2.30	0.11

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	470	580	41	AW

* AW : As-Welded

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
(A)	V · OH	35~45	40~60	70~90	90~130	

KST-316

For stainless steel (18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 2 R 12	KS D 7014-2008	E316-16
EN ISO 3581-B:2016	ES316-16	JIS Z 3221-2013	ES316-16
AWS A5.4-2014	E316-16		

Description

- Covering is lime titania type for welding of 18%Cr-12%Ni-Mo stainless steel. (AISI 316) or dissimilar steels.
- Especially suitable for flat and horizontal fillet welding.
- Excellent corrosion resistance against sulphurous acid, phosphoric acid and acetic acid.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.73	1.18	0.028	0.012	12.50	18.30	2.25	0.14

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	460	590	42	AW

* AW : As-Welded

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
(A)	V · OH	25~45	45~60	70~90	90~130	

Approvals

ABS, BV, DNV-GL, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-316L-15

For stainless steel (Low C, 18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 3 L B 22	KS D 7014-2008	E316L-15
EN ISO 3581-B:2016	ES316L-15	JIS Z 3221-2013	ES316L-15
AWS A5.4-2014	E316L-15		

Description

- Covering is lime type for welding of 18%Cr-12%Ni-Mo stainless stees, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.
- Good Crack resistance and usability.
- As low carbon welded metal can be obtained, intergranular corrosion resistance is superior to that of E316 type.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.40	1.08	0.025	0.006	11.67	19.22	2.43	0.30	9.8

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 490	min. 30			
EN ISO 3581-A	min. 320	min. 510	min. 25			
Example	400	580	39	73	25	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-316LB

For stainless steel (Low C, 18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 3 L B 22	KS D 7014-2008	E316L-15
EN ISO 3581-B:2016	ES316L-15	JIS Z 3221-2013	ES316L-15
AWS A5.4-2014	E316L-15		

Description

- Covering is lime type for welding of 18%Cr-12%Ni-Mo stainless stees, austenitic stainless steels which are required and the place where heat treatment after welding is impossible.
- Good Crack resistance and usability.
- As low carbon welded metal can be obtained, intergranular corrosion resistance is superior to that of E316 type.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.61	1.65	0.024	0.004	12.69	18.00	2.52	0.23	7.0

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 490	min. 30			
EN ISO 3581-A	min. 320	min. 510	min. 25			
Example	380	560	36	70	36 (0.44)	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0
Length	(mm)	300	350	350
Amp.	F	55~80	90~130	110~150
(A)	V · OH	40~60	70~90	90~130

KST-316L

For stainless steel (Low C, 18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 3 L R 12	KS D 7014-2008	E316L-16
EN ISO 3581-B:2016	ES316L-16	JIS Z 3221-2013	ES316L-16
AWS A5.4-2014	E316L-16		

Description

- Covering is lime titania type for welding of 18%Cr-12%Ni-Mo stainless steel. (AISI 316) or dissimilar steels.
- Especially suitable for flat and horizontal fillet welding.
- Excellent corrosion resistance against sulphurous acid, phosphoric acid and acetic acid.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.75	0.80	0.028	0.011	11.71	17.95	2.60	0.12	5.7

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -120℃	Remarks
AWS A5.4		min. 490	min. 30			
EN ISO 3581-A	min. 320	min. 510	min. 25			
Example	390	570	43	75	40 (0.47)	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

Approvals

ABS, BV, DNV-GL, KR, LR, CWB,TUV, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-316L-17

For stainless steel (Low C, 18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 12 3 L R 12	KS D 7014-2008	E316L-16
EN ISO 3581-B:2016	ES316L-17	JIS Z 3221-2013	ES316L-17
AWS A5.4-2014	E316L-17		

Description

- Covering is lime titania type for welding of 18%Cr-12%Ni-Mo stainless steel. (AISI 316) or dissimilar steels.
- As low carbon welded metal can be obtained, intergranular corrosion resistance is superior to that of E316 type.
- Good crack resistance and usability of austenitic structure with suitable ferrite of the deposited W.M.
- Excellent usability with direct current applications.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.75	0.80	0.028	0.011	11.71	18.02	2.75	0.12	6.2

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -196℃	Remarks
AWS A5.4		min. 490	min. 30			
EN ISO 3581-A	min. 320	min. 510	min. 25			
Example	420	590	45	75	26	AW

* AW : As-Welded

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
(A) V · OH	35~45	45~60	70~90	90~130	

KST-317

For stainless steel (18%Cr-12%Ni-Mo)

Classifications

AWS A5.4-2014	E317-16
KS D 7014-2008	E317-16
JIS Z 3221-2013	ES317-16

Description

- Covering is lime titania type for welding of AISI 317 or dissimilar steels such as carbon steel to stainless steels.
- Good weldability and performance.
- Reduce the susceptibility of pitting.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.06	0.74	1.20	0.026	0.007	12.34	18.57	3.20	0.15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 30	
JIS Z 3221		min. 550	min. 20	
Example	450	580	43	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

KST-317L

For stainless steel (Low C, 18%Cr-12%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 19 13 4 N L R 12	KS D 7014-2008	E317L-16
EN ISO 3581-B:2016	ES317L-16	JIS Z 3221-2013	ES317L-16
AWS A5.4-2014	E317L-16		

Description

- Covering is lime titania type for welding of 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.
- Good weldability and performance.
- Reduce the susceptibility of pitting.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.03	0.75	1.24	0.025	9.000	12.40	18.60	3.32	0.21

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 520	min. 30	
EN ISO 3581-A	min. 350	min. 550	min. 25	
Example	450	570	44	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

KST-318

For stainless steel (18%Cr-12%Ni-2%Mo-Nb)

Classifications

AWS A5.4-2014	E318-16
KS D 7014-2008	E318-16
JIS Z 3221-2013	ES318-16

Description

- Covering is lime titania type for welding of AISI 318, 316, 316L stainless steel.
- The deposited weld metal is highly resistant to pitting and general type of corrosion.
- Insensitive to intergranular corrosion because of Nb.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Nb
0.05	0.76	1.32	0.022	0.008	11.90	18.43	2.35	0.69

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 550	min. 25	
JIS Z 3221		min. 550	min. 20	
Example	500	630	38	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	60~90	90~130	

KST-347B

For stainless steel (18%Cr-8%Ni-Nb)

Classifications

EN ISO 3581-A:2016	E 19 9 Nb B 22	KS D 7014-2008	E347-15
EN ISO 3581-B:2016	ES347-15	JIS Z 3221-2013	ES347-15
AWS A5.4-2014	E347-15		

Description

- Covering is lime type for welding of AISI 304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.
- Excellent intergranular corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.65	1.52	0.026	0.004	9.47	18.82	0.45	0.10	8.5

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) -20℃	Remarks
AWS A5.4		min. 520	min. 30			
EN ISO 3581-A	min. 350	min. 550	min. 25			
Example	450	640	42	90	70	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0
Length	(mm)	300	350	350
Amp.	F	55~80	90~130	110~150
(A)	V · OH	40~60	70~90	90~130

KST-347

For stainless steel (18%Cr-8%Ni-Nb)

Classifications

EN ISO 3581-A:2016	E 19 9 Nb R 12	KS D 7014-2008	E347-16
EN ISO 3581-B:2016	ES347-16	JIS Z 3221-2013	ES347-16
AWS A5.4-2014	E347-16		

Description

- Covering is lime titania type for welding of AISI 304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.
- Excellent intergranular corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	FN
0.03	0.49	1.94	0.026	0.004	9.83	19.16	0.48	0.10	7.3

* FN : WRC 1992

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) -20℃	Remarks
AWS A5.4		min. 520	min. 30			
EN ISO 3581-A	min. 350	min. 550	min. 25			
Example	430	620	40	80	65	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	65~90	90~130	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-347-17

For stainless steel(18%Cr-8%Ni-Nb)

Classifications

EN ISO 3581-A:2012	E 19 9 Nb R 12	KS D 7014-2008	E347-16
EN ISO 3581-B:2012	ES347-17	JIS Z 3221-2013	ES347-17
AWS A5.4-2012	E347-17		

Description

- Covering is lime titania type for welding of AISI 304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.
- Excellent intergranular corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Nb	FN
0.04	0.53	1.98	0.029	0.002	9.80	19.40	0.12	0.47	8.4

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) -20℃	Remarks
AWS A5.4		min. 520	min. 30			
EN ISO 3581-A	min. 350	min. 550	min. 25			
Example	470	620	35	82	63	AW

* AW : As-Welded

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	80~110	110~150	140~180
(A)	V · OH	40~60	70~100	90~130	

KST-347L

For stainless steel (Low C, 18%Cr-8%Ni-Nb)

Classifications

KS D 7014-2008 E347L-16
JIS Z 3221-2013 ES347L-16

Description

- Covering is lime titania type for welding of AISI 304L, 321, 347 stainless steel and the place where heat treatment after welding is impossible.
- Excellent intergranular corrosion resistance.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Nb
0.03	0.46	1.85	0.028	0.005	9.80	19.35	0.20	0.68

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
JIS Z 3221		min. 510	min. 30	
Example	440	600	39	AW

* AW : As-Welded

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
(A)	V · OH	35~45	45~60	70~90	90~130	

KST-410

For stainless steel (13%Cr, Hardfacing)

Classifications

EN ISO 3581-A:2016	E 13 R 12	KS D 7014-2008	E410-16
EN ISO 3581-B:2016	ES410-16	JIS Z 3221-2013	ES410-16
AWS A5.4-2014	E410-16		

Description

- Covering is lime titania type for welding of 13%Cr steel and surfacing of the part where require cavitation or corrosion resistance is required.
- Excellent oxidation corrosion and abrasion resistance of the deposited weld metal.
- Preheat at 100~250°C and postheat treat at 700~800°C because of high self-hardening property of the deposited weld metal.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.08	0.70	0.76	0.030	0.004	0.15	12.10	0.10	0.08

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 450	min. 20	
EN ISO 3581-A	min. 250	min. 450	min. 15	
Example	400	560	24	PWHT

* PWHT : 750℃x1Hr.

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
(A)	V · OH	45~60	70~90	90~130	

KST-410NiMo

For stainless steel (13%Cr-Ni-Mo, Hardfacing)

Classifications

EN ISO 3581-A:2016	E 13 4 R 12	KS D 7014-2008	E410-16
EN ISO 3581-B:2016	ES410NiMo-16	JIS Z 3221-2013	ES410NiMo-16
AWS A5.4-2014	E410NiMo-16		

Description

- Covering is lime titania type for welding of 13%Cr-Ni-Mo steel and surfacing of the part where require cavitation or corrosion resistance is required.
- Excellent oxidation corrosion and abrasion resistance of the deposited weld metal.
- Preheat at 100~250°C and postheat treat at 600~700°C because of high self-hardening property of the deposited weld metal.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.02	0.49	0.35	0.030	0.012	4.71	11.70	0.62	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 760	min. 15	
JIS Z 3221		min. 760	min. 10	
Example	820	930	17	PWHT

* PWHT : 610℃x1Hr. & Air cooling

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
(A)	V · OH	45~60	70~90	90~130	

KST-430

For stainless steel (17%Cr, Hardfacing)

Classifications

EN ISO 3581-A:2016	E 17 R 12	KS D 7014-2008	E430-16
EN ISO 3581-B:2016	ES430-16	JIS Z 3221-2013	ES430-16
AWS A5.4-2014	E430-16		

Description

- Covering is lime titania type for welding of 17%Cr stainless steel or AISI 403, 405
- Preheat at 200~300°C and postheat treat at 700~800°C.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.07	0.42	0.75	0.028	0.009	0.20	17.43	0.20	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 450	min. 20	
EN ISO 3581-A	min. 300	min. 450	min. 15	
Example	380	530	27	PWHT

* PWHT : 780℃x2Hr.

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	55~75	80~100	110~140	140~170
(A)	V · OH	45~60	70~90	90~130	

KST-2209

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

Classifications

EN ISO 3581-A:2016	E 22 9 3 N L R 12	JIS Z 3221-2013	ES2209-16
EN ISO 3581-B:2016	ES2209-16		
AWS A5.4-2014	E2209-16		

Description

- Covering is lime titania type for welding of 22%Cr-9%Ni-3%Mo duplex stainless steels, the principal applicationsare chemical plant and shipbuilding as well as nuclear plant industries. (UNS S31803)
- Excellent pitting corrosion resistance and stress corrosion cracking resistance.
- Please perform welding with selecting proper heat input according to the required mechanical properties.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	N	PREN
0.02	0.62	0.80	0.025	0.011	8.73	22.63	3.19	0.18	35.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 690	min. 20	
EN ISO 3581-A	min. 450	min. 550	min. 20	
Example	550	780	24	AW

* AW : As-Welded

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	80~110	110~150	140~180
(A)	V · OH	40~60	70~100	90~130	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KST-2209B

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

Classifications

EN ISO 3581-A:2006	E 22 9 3 N L B 22	JIS Z 3211:2013	ES2209-15
EN ISO 3581-B:2006	ES2209-15		
AWS A5.4-2012	E2209-15		

Description

- Covering is lime titania type for welding of 22%Cr-9%Ni-3%Mo duplex stainless steels, the principal applicationsare chemical plant and shipbuilding as well as nuclear plant industries. (UNS S31803)
- Excellent pitting corrosion resistance and stress corrosion cracking resistance.
- Please perform welding with selecting proper heat input according to the required mechanical properties.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	N	PREN
0.02	0.52	1.03	0.017	0.010	9.40	23.10	3.08	0.14	35.5

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 690	min. 20	
EN ISO 3581-A	min. 450	min. 550	min. 20	
Example	560	800	29	AW

* AW : As-Welded

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	80~110	110~150	140~180
(A)	V · OH	40~60	70~100	90~130	

KST-2594

For super duplex stainless steel (25%Cr-9%Ni-Mo)

Classifications

EN ISO 3581-A:2016	E 25 9 4 N L R 12
EN ISO 3581-B:2016	ES2594-16
AWS A5.4-2014	E2594-16

Description

- Covering is lime titania type for welding of 25%Cr-9%Ni-4%Mo-0.2%N super duplex stainless steels, the principal applicationsare chemical plant and shipbuilding as well as nuclear plant industries. (UNS S32750)
- Excellent pitting corrosion resistance and stress corrosion cracking resistance.
- Please perform welding with selecting proper heat input according to the required mechanical properties.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cr	Mo	N	PREN
0.03	0.54	0.75	0.025	0.011	9.59	25.11	3.90	0.25	42.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.4		min. 760	min. 15	
EN ISO 3581-A	min. 550	min. 620	min. 18	
Example	810	930	28	AW

* AW : As-Welded

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	80~110	110~150	140~180
(A)	V · OH	40~60	70~100	90~130	

KL-100

For cast iron

Classifications

KS D 7008-2002	DFCCI
JIS Z 3252-2012	E C FeC-3

Description

- Covering is graphite type for repairing of all kind of cast iron product cavity filling.
- Preheat at minimum 200°C. The temperature to be applied varies in accordance with kind, shape and size of base metal.
- Gradual cooling is recommended after welding.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe
3.16	6.27	0.42	0.015	0.006	Rem.

Typical mechanical properties 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. (A)	F	110~140	150~190	190~220

KCF-50

For cast iron

Classifications

AWS A 5.15-2006 Est

Description

- Covering is graphite type for repairing of all kind of cast iron product.
- Stable arc, easy slag removal aqnd beautiful bead appearance.
- Preheat at minimum 200°C. The temperature to be applied varies in accordance with kind, shape and size of base metal.
- Gradual cooling is recommended after welding.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe
1.68	0.50	0.35	0.021	0.006	Rem.

Typical mechanical properties of all-weld metal

T.S (MPa)	El. (%)	Hardness (Hv)
490	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. (A)	F	60~90	90~130	130~180	150~200

KFN-50

For cast iron

Classifications

EN ISO 1071:2003	E C NiFe-Cl 1	KS D 7008-2002	DFCNiFe
AWS A 5.15-2006	ENiFe-Cl	JIS Z 3252-2012	E C NiFe-Cl

Description

- Covering is graphite type for joining of spheroidal graphit cast iron or repairing of cast iron products such as cylinder covers, motor beds, casings and gears.
- Good crack resistance and mechanical properties.
- Preheat at 150~300°C. The temperature to be applied varies in accordance with kind, shape and size of base metal.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cu	Fe	Al
0.80	0.36	0.45	0.008	0.002	55.5	0.05	Rem.	0.05

Typical mechanical properties of all-weld metal

T.S	Hardness		
(MPa)	Hv	HB	HS
550	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	550
Amp. (A)	F	60~90	80~120	120~150	140~190

KSN-100

For cast iron

Classifications

EN ISO 1071:2003	E C Ni-CI 1	KS D 7008-2002	DFCNi
AWS A 5.15-2006	ENi-CI	JIS Z 3252-2012	E C Ni-CI

Description

- Covering is graphite type for repairing and joining of various kinds of cast iron products such as cylinder covers, motor beds, casings and gears or repairing co cast iron, alloy cast iron and malleable cast iron.
- Easily machinable deposited weld metal.
- Chip off base metal completely at the repairing part.
- Preheat at 150~300°C. The temperature to be applied varies in accordance with kind, shape and size of base metal.
- Redry the electrode at 70~120°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni	Cu	Fe	Al
0.55	0.40	0.35	0.009	0.001	Rem.	0.05	0.85	0.05

Typical mechanical properties of all-weld metal

T.S		Hardness	
(MPa)	Hv	HB	HS
420	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	550
Amp. (A)	F	60~90	70~110	110~130	130~150

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

CUTTING ROD

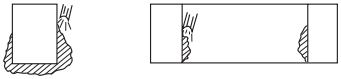
For special purpose (Cutting operation)

Description

- Cutting of carbon steels, cast irons, stainless steels and nonferrous alloys, etc.
- Designed for high efficiency in cutting of all kinds of steel.
- Quiet and stable arc.
- Excellent usability.
- When the electrodes have absorbed moisture, redry the electrode at 70~80°C for 30 minutes prior to use.

Illustration

- Removal of protrusion



- Removal of down gate, cross gate, etc.

Sizes available and recommended currents (AC or DC-)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	F	150~130	230~180	300~400

GOUGING ROD

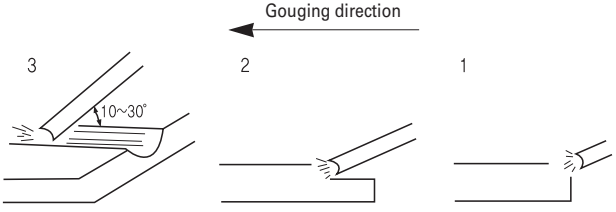
For special purpose (Gouging operation)

Description

- Gouging of carbon steels, cast irons, stainless steels and nonferrous alloy, etc.
- Designed for high efficiency in gouging of all kinds of steel.
- Operated surface is very clean.
- Suitable for rapid removal of unnecessary parts.
- When the electrodes have absorbed moisture, redry the electrode at 70~80°C for 30 minutes prior to use.

Gouging hints

In gouging operation worker must maintain 10~30° between the electrode and base plate.



Sizes available and recommended currents (AC or DC-)

Dia.	(mm)	3.2	4.0	5.0
Length	(mm)	350	400	400
Amp. (A)	F	150~180	230~260	270~320

Gas Metal Arc Welding Wires(Solid Wires)

FOR HIGH TENSILE STRENGTH STEEL

FOR HEAT-RISISTING STEEL

FOR LOW-TEMPERATURE SERVICE STEEL

KC-25

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 42 2 C1 2Si	KS D 7025:2005	YGW14
EN ISO 14341-B:2011	G 49A 2 C1 S3	JIS Z 3312:2009	G 43 A 0 U C 3
AWS A5.18:2005	ER70S-3		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for welds that are subject to enamelling or galvanising due to low Si-content.
- Excellent performance of root welding for multiple pass welds.
- Suited for application of sheet metal with superior arc stability on low welding current.

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
EN ISO 14341-A	min. 420	500~640	min. 20	≥ 47	CO_2
Example	430	520	33	90	CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	70 ~ 200	100 ~ 250
	Overhead (PE/4G)	70 ~ 200	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

Approvals

CWB, KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-25M

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 42 2 M21 2Si	KS D 7025:2005	YGW16
EN ISO 14341-B:2011	G 49A 2 M21 S3	JIS Z 3312:2009	YGW16
AWS A5.18:2005	ER70S-3		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for application of sheet metal with mixture gas and all welding positions.
- Low slag formation, high deposition rate and superior arc stability.

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
EN ISO 14341-A	min. 420	500~640	min. 20	≥ 47	Mix
Example	440	540	30	100	Mix

Operating data

	Dia.(mm)	1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-35

For mild steel and 490MPa tensil strength steel

Classifications

AWS A5.18:2005 ER70S-3

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles
- Suited for application of sheet metal with mixture gas and all welding positions.
- Low slag formation, high deposition rate and superior arc stability.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.06	0.51	1.15	0.014	0.030

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
Example	440	540	25	80	Ar+10%CO_2
	485	560	25	70	Ar+10%CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+10% CO_2 (15~25ℓ/min.)
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-37S

For mild steel and 490MPa tensil strength steel

Classifications

AWS A5.18:2005 ER70S-G

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for application of sheet metal with mixture gas and all welding positions.
- Low slag formation, high deposition rate and superior arc stability.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.07	0.04	1.70	0.002	0.005

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18			Not spec.		
Example	580	624	28.7		Ar+20%CO_2
	494	560	27.7		Ar+5%CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+5% CO_2 (15~25ℓ/min.)
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

KC-26

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 2 C1 Z G 46 2 M21 Z	AWS A5.18:2005	ER70S-G
EN ISO 14341-B:2011	G 49A 2 C1 S11 G 49A 2 M21 S11	KS D 7025:2005 JIS Z 3312:2009	YGW11 YGW11

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Excellent defect resistant on high heat input.
- Possible to achieve higher productivity due to low spatter and deep penetration.
- Beautiful weld appearance on flat or horizontal welding position.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.06	0.80	1.53	0.014	0.01	0.18

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	CO_2
Example	490	570	30	110	CO_2
	520	590	31	120	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

ABS, BV, DNV, LR, KR, NK(CO_2, MIX), CE, KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-26

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 2 C1 Z	AWS A5.18:2005	ER70S-G
	G 46 2 M21 Z	KS D 7025:2005	YGW11
EN ISO 14341-B:2011	G 49A 2 C1 S11	JIS Z 3312:2009	YGW11
	G 49A 2 M21 S11		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Excellent defect resistant on high heat input.
- Possible to achieve higher productivity due to low spatter and deep penetration.
- Beautiful weld appearance on flat or horizontal welding position.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.06	0.80	1.53	0.014	0.01	0.18

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	CO_2
Example	490	570	30	110	CO_2
	520	590	31	120	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	70 ~ 200	100 ~ 250
	Overhead (PE/4G)	70 ~ 200	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-50R

For 490MPa tensile strength steel and welding robot

Classifications

EN ISO 14341-A:2011	G 46 2 C1 Z G 46 2 M21 Z	AWS A5.18:2005	ER70S-G
EN ISO 14341-B:2011	G 49A 2 C1 S11 G 49A 2 M21 S11	KS D 7025:2005 JIS Z 3312:2009	YGW11 YGW11

Description

- For robot welding of bridges, structural steel, steel buildings.
- Excellent defect resistant on high heat input.
- Possible to achieve higher productivity due to low spatter and deep penetration.
- Suited for multi-pass welding due to low slag and easy to remove.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.09	0.54	0.97	0.011	0.004	0.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	
JIS Z 3312	min. 400	490~670	min. 18	≥ 47(@0℃)	
Example	490	570	34	110	As Weld

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	70 ~ 200	100 ~ 250
	Overhead (PE/4G)	70 ~ 200	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-27

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 2 M21 Z	KS D 7025:2005	YGW15
EN ISO 14341-B:2011	G 49A 2 M21 S15	JIS Z 3312:2009	YGW15
AWS A5.18:2005	ER70S-G		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for application of automatic pipe welding with carbon dioxide or mixture gas.
- Low spatter and beautiful weld appearance.
- Possible to perform with all welding positions and get high impact value in welds.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.07	0.62	1.18	0.014	0.010	0.09

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	Mix
Example	490	560	31	160	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

Shielding gas	ABS	DNV	NK	Others
Mix	3YSA	Ⅲ YMS	KSW53G	JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-27

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 2 M21 Z	KS D 7025:2005	YGW15
EN ISO 14341-B:2011	G 49A 2 M21 S15	JIS Z 3312:2009	YGW15
AWS A5.18:2005	ER70S-G		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for application of automatic pipe welding with carbon dioxide or mixture gas.
- Low spatter and beautiful weld appearance.
- Possible to perform with all welding positions and get high impact value in welds.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.07	0.62	1.18	0.014	0.010	0.09

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	Mix
Example	490	560	31	160	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

ABS, DNV, LR, NK, CE, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-28

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 42 3 C1 3Si1	AWS A5.18:2005	ER70S-6
	G 42 3 M21 3Si1	KS D 7025:2005	YGW12
EN ISO 14341-B:2011	G 49A 3 C1 S6	JIS Z 3312:2009	YGW12
	G 49A 3 M21 S6		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Served as both carbon dioxide and mixture gas, and stable arc performance in almost welding current.
- A wide range of use due to low spatter and all welding position.
- Suited for application of sheet metal on high welding current without burn through.

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
EN ISO 14341-A	min. 420	500~640	min. 20	≥ 47	CO_2
Example	450	550	30	70	CO_2
	480	580	28	80	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

ABS(CO_2, MIX), BV, DNV(CO_2, MIX), LR(CO_2, MIX), KR, NK, RS, CCS, CWB, KS, JIS, TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-28

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 42 3 C1 3Si1	AWS A5.18:2005	ER70S-6
	G 42 3 M21 3Si1	KS D 7025:2005	YGW12
EN ISO 14341-B:2011	G 49A 3 C1 S6	JIS Z 3312:2009	YGW12
	G 49A 3 M21 S6		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Served as both carbon dioxide and mixture gas, and stable arc performance in almost welding current.
- A wide range of use due to low spatter and all welding position.
- Suited for application of sheet metal on high welding current without burn through.

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
EN ISO 14341-A	min. 420	500~640	min. 20	≥ 47	CO_2
Example	450	550	30	70	CO_2
	480	580	28	80	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

ABS(CO_2, MIX), BV(CO_2), DNV(MIX), LR(CO_2, MIX), KR(MIX), NK(CO_2, MIX), KS, JIS, TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-29

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 4 C1 4Si1 G 46 4 M21 4Si1	AWS A5.18:2005	ER70S-6
EN ISO 14341-B:2011	G 49A 4U C1 S6 G 49A 4U M21 S6	JIS Z 3312:2009	G 55 A 4 U C 6

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Served as both carbon dioxide and mixture gas, and stable arc performance in almost welding current.
- A wide range of use due to low spatter and all welding position.
- Suited for application of sheet metal on high welding current without burn through.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.08	0.99	1.63	0.015	0.007

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27		CO_2
EN ISO 14341-A	min. 460	530~680	min. 20		≥ 47	CO_2
Example	510	620	27	110	105	CO_2
	560	660	24	90	80	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-29

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 4 C1 4Si1	AWS A5.18:2005	ER70S-6
	G 46 4 M21 4Si1	JIS Z 3312:2009	G 55 A 4 U C 6
EN ISO 14341-B:2011	G 49A 4U C1 S6		
	G 49A 4U M21 S6		

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Served as both carbon dioxide and mixture gas, and stable arc performance in almost welding current.
- A wide range of use due to low spatter and all welding position.
- Suited for application of sheet metal on high welding current without burn through.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.08	0.99	1.63	0.015	0.007

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27		CO_2
EN ISO 14341-A	min. 460	530~680	min. 20		≥ 47	CO_2
Example	510	620	27	110	105	CO_2
	560	660	24	90	80	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

Approvals

TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KC-70S2

For mild steel and 490MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 46 3 C1 2Ti G 46 3 M21 2Ti	AWS A5.18:2005	ER70S-2
EN ISO 14341-B:2011	G 49A 3 C1 S2 G 49A 3 M21 S2	JIS Z 3312:2009	G 49 A 3 C 2

Description

- For butt and fillet welding of ship-building, bridges, structural steel, steel buildings, machineries and vehicles.
- Suited for welding of rimmed or semi-killed steel due to contaning Al, Ti and Zr as strong deoxidants.
- Mainly used for single pass welding, and superior arc stability.
- Suited for welding of steels that demand for high impact values on low temperature.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti	Al
0.07	0.67	1.20	0.015	0.011	0.07	0.08

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	CO_2
EN ISO 14341-B	min. 390	490~670	min. 18	≥ 27	CO_2
Example	490	550	29	80	CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2
  Mix : Ar+20% CO_2 (15~25ℓ/min.)

ZO-55

For 540MPa tensile strength steel

Classifications

EN ISO 14341-A:2011	G 50 0 C1 Z	AWS A5.18:2005	ER70S-G
EN ISO 14341-B:2011	G 55A 0U C1 S18	JIS Z 3312:2009	YGW18

Description

- For butt and fillet welding of machineries, bridges, heavy equipment and pressure vessels.
- Excellent mechanical properties on high heat input(40KJ/cm) or interpass temperature.(350°C)
- High deposition rate per unit time.
- Beautiful weld appearance due to excellent arc stability.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.07	0.92	1.92	0.012	0.004	0.18

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
EN ISO 14341-B	min. 460	570~770	min. 17	≥ 47	CO_2
Example	580	640	27	170	CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-55R

For 540MPa tensile strength steel and welding robot

Classifications

AWS A5.18:2005 ER70S-G
JIS Z 3312:2009 YGW18

Description

- For robot welding of bridges, structural steel, steel buildings.
- Excellent mechanical properties on high heat input(40KJ/cm) or interpass temperature.(350°C)
- High deposition rate per unit time.
- Suited for multi-pass welding due to low slag and easy to remove.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ti
0.08	0.63	1.42	0.009	0.01	0.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		
JIS Z 3312	min. 460	550~740	min. 17	≥ 70	
Example	585	665	30	125	As Weld

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	140 ~ 400
	Vertical (PF/3G)	50 ~ 180	100 ~ 250
	Overhead (PE/4G)	50 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

ZO-60

For 590MPa tensile strength steel

Classifications

EN ISO 16834-A:2012	G 55 2 C1 Z	KS D 7025:2005	YGW21
EN ISO 16834-B:2012	G 62A 2U C1 3M1T	JIS Z 3312:2009	G 59J A 1 U C 3M1T
AWS A5.28:2005	ER80S-G		

Description

- For butt and fillet welding of machineries, heavy equipments, pressure vessels and steel that demand for creep-resistant in high temperature.
- Superior arc stability and X-ray soundness.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Mo	Ti
0.07	0.84	1.95	0.014	0.005	0.31	0.17

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.28		min. 550			
EN ISO 16834-B	min. 530	620~820	min. 15	≥ 47	CO_2
Example	550	640	27	110	CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

Approvals

BV, NK, RS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZO-90

For 620MPa tensile strength steel

Classifications

EN ISO 16834-A:2012 G 62 3 M21 Z	AWS A5.28:2005 ER90S-G
EN ISO 16834-B:2012 G 69A 3U M21 3M1T	JIS Z 3312:2009 G 62 A 3 M 3M1T

Description

- For butt and fillet welding of machineries, heavy equipments, pressure vessels and steel that demand for creep-resistant in high temperature.
- Superior arc stability and sound welds for X-ray test.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Mo	Ti
0.05	0.73	1.94	0.015	0.006	0.28	0.15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.28		min. 620			
EN ISO 16834-B	min. 600	690~890	min. 14	≥ 47	Mix
Example	680	740	24	110	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

ZH-90

For 620MPa tensile strength steel

Classifications

EN ISO 16834-A:2012	G 62 6 M21 Mn3Ni1Mo	AWS A5.28:2005	ER90S-G
EN ISO 16834-B:2012	G 69A 6U M21 N2M1T	JIS Z 3312:2009	G 62 A 6 U M N2M1T

Description

- For butt and fillet welding of machineries, heavy equipments, pressure vessels and steel that demand for creep-resistant in high temperature.
- Superior arc stability and sound welds for X-ray test.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.09	0.54	1.31	0.004	0.001	0.99	0.32

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28		min. 620			
EN ISO 16834-B	min. 600	690~890	min. 14	≥ 47	Mix
Example	660	740	21	60	Mix

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

ZH-100

For 690MPa tensile strength steel

Classifications

EN ISO 16834-A:2012	G 62 2 M21 Z Mn3Ni1.5Mo G 62 2 M13 Z Mn3Ni1.5Mo	AWS A5.28:2005 JIS Z 3312:2009	ER100S-1/G G 69 A 2 M N4CM21T
EN ISO 16834-B:2012	G 69A 2U M21 N4CM21T G 69A 2U M13 N4CM21T		

Description

- For butt and fillet welding of machineries, heavy equipments and pressure vessels.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.05	0.26	1.54	0.008	0.006	2.00	0.35

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	Remarks
AWS A5.28	min. 610	min. 690	min. 16	≥ 68	Ar+2% O_2
EN ISO 16834-B	min. 600	690~890	min. 14	≥ 47	Mix
Example	700	760	20	70	Mix
	720	780	22	130	Ar+2% O_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)
  Ar+2% O_2 (15~25ℓ/min)

Approvals

CWB, TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

ZH-100D

For 690MPa tensil strength steel

Classifications

EN ISO 16834-A:2012	G 62 2 M21 Z Mn3Ni1.5Mo	AWS A5.28:2005	ER100S-1/G
	G 62 2 M13 Z Mn3Ni1.5Mo	JIS Z 3312:2009	G 69 A 2 M N4CM21T
EN ISO 16834-B:2012	G 69A 2U M21 N4CM21T		
	G 69A 2U M13 N4CM21T		

Description

- For butt and fillet welding of military low alloy applications.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.05	0.26	1.54	0.008	0.006	2.00	0.35

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	Remarks
AWS A5.28	min. 610	min. 690	min. 16	≥ 68	Ar+2% O_2
EN ISO 16834-B	min. 600	690~890	min. 14	≥ 47	Mix
Example	700	760	20	70	Mix
	720	780	22	130	Ar+2% O_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2
  Ar+2% O_2 (15~25ℓ/min)

ZO-110

For 760MPa tensile strength steel

Classifications

EN ISO 16834-A:2007 G 69 4 M21 Mn3Ni1CrMo
AWS A5.28:2005 ER110S-G

Description

- For butt and fillet welding of construction machine, heavy equipment and pressure vessels.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.08	0.52	1.68	0.002	0.003	1.41	0.24

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.28		min. 760			
EN ISO 16834-B	min. 690	770-940	min. 17	≥ 47	Ar+20% CO_2
Example	756	844	18	100	Ar+20% CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2
  Ar+5% CO_2 (15~25ℓ/min)

ZH-120

For 830MPa tensile strength steel

Classifications

EN ISO 16834-A:2012	G 69 6 M21 Z	AWS A5.28:2005	ER120S-G
EN ISO 16834-B:2012	G 83A 6U M21 G	JIS Z 3312:2009	G 78 A 6 M 0

Description

- For butt and fillet welding of construction machine, heavy equipment and pressure vessels.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.06	0.52	1.48	0.002	0.003	3.42	0.57

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28		min. 830			
EN ISO 16834-B	min. 745	830~1030	min. 12	≥ 47	Mix
Example	820	890	16	100	Mix
	880	940	15	100	Ar+5% CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)
  Ar+5% CO_2 (15~25ℓ/min)

ZO-120

For 830MPa tensile strength steel

Classifications

EN ISO 16834-A:2012 G 79 4 M21 Mn4Ni2CrMo
AWS A5.28:2005 ER120S-G

Description

- For butt and fillet welding of construction machine, heavy equipment and pressure vessels.
- Stable weldability on high welding current.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni	Mo
0.10	0.80	1.80	0.010	0.005	1.90	0.54

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.28		min. 830			
EN ISO 16834-A	min. 790	880~1080	min. 16	≥ 47	Mix
Example	890	950	21	66	Mix
	870	930	22	110	Ar+2% O_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)
  Ar+2% O_2 (15~25ℓ/min)

KC-80D2

For 0.5%Mo heat-resistant steel

Classifications

AWS A5.28:2005 ER80S-D2
KS D 7120:2005 YGM-C
JIS Z 3317:2011 YGM-C

Description

- For butt and fillet welding of structural steels, boiler and pressure vessels such as 0.5%Mo heat-resistant steel.
- Excellent property of heat-resistant due to alloying Mo.
- Superior tensile strength and impact values after PWHT.
- Beautiful weld appearance due to excellent arc stability and low spatter.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Mo
0.08	0.58	1.85	0.014	0.009	0.46

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.28	min. 470	min. 550	min. 17	≥ 27	CO_2
Example	610	690	25	60	CO_2

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- CO_2 : 100% CO_2 (15~25ℓ/min.)

KC-81CMA

For 1.25%Cr-0.5%Mo heat-resistant steel

Classifications

AWS A5.28:2005	ER80S-G	JIS Z 3317:2011	G 55M-1CM3
KS D 7120:2005	YG1CM-A		

Description

- For butt and fillet welding of power stations, heat exchanger and oil refineries such as 1.25%Cr-0.5%Mo heat-resistant steel.
- Excellent property of heat-resistant due to alloying Cr and Mo.
- Superior tensile strength and impact values after PWHT.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Cr	Mo
0.07	0.64	1.06	0.009	0.009	1.31	0.48

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28		min. 550			
JIS Z 3317	min. 460	min. 560	min. 19	≥ 47	PWHT
Example	510	620	25	108(@0℃)	PWHT, Mix

* PWHT : Postweld heat treatment (690℃x1Hr.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

KC-80SB2

For 1.25%Cr-0.5%Mo heat-resistant steel

Classifications

EN ISO 21952-B:2012	G 55 M13 1CM	KS D 7120:2005	YG1CM-G
AWS A5.28:2005	ER80S-B2	JIS Z 3317:2011	G 55A-1CM

Description

- For butt and fillet welding of power stations, heat exchanger and oil refineries such as 1.25%Cr-0.5%Mo heat-resistant steel.
- Excellent property of heat-resistant due to alloying Cr and Mo.
- Superior tensile strength and impact values after PWHT.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Cr	Mo
0.09	0.54	0.51	0.015	0.006	1.26	0.45

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.28	min. 470	min. 550	min. 19		PWHT, Ar+2% O_2
EN ISO 21952-B	min. 470	min. 550	min. 17		PWHT
Example	500	580	25	80	PWHT, Ar+2% O_2

* PWHT : Postweld heat treatment (620℃x1Hr.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Ar+20% O_2 (15~25ℓ/min.)

KC-80SB2MnV

For 1.25%Cr-0.5%Mo-V heat-resistant steel

Classifications

AWS A5.28:2005 ER80S-G

Description

- For butt and fillet welding of power stations, heat exchanger and oil refineries such as 1.25%Cr-0.5%Mo heat-resistant steel.
- Excellent property of heat-resistant due to alloying Cr and Mo.
- Superior tensile strength and impact values after PWHT.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Cr	Mo	V
0.08	0.73	1.40	0.01	0.006	1.11	0.55	0.25

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28		min. 550			
Example	730	800	22	45	PWHT, Ar+10% CO_2
	720	790	21	105	PWHT, Ar+20% CO_2

* PWHT : Postweld heat treatment (730℃x1Hr.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+20% CO_2 (15~25ℓ/min.)

KC-90SB3

For 2.25%Cr-1%Mo heat-resistant steel

Classifications

EN ISO 21952-B:2012	G 62 M13 2C1M	KS D 7120:2005	YG2CM-G
AWS A5.28:2005	ER90S-B3	JIS Z 3317:2011	G 62A-2C1M

Description

- For butt and fillet welding of power stations, heat exchanger and oil refineries such as 2.25%Cr-1%Mo heat-resistant steel.
- Excellent property of heat-resistant due to alloying Cr and Mo.
- Superior tensile strength and impact values after PWHT.
- Beautiful weld appearance due to low spatter with mixture gas.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Cr	Mo
0.09	0.47	0.66	0.01	0.014	2.31	1.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28	min. 540	min. 620	min. 17		PWHT, Ar+2% O_2
EN ISO 21952–B	min. 540	min. 620	min. 15		PWHT
Example	570	660	24	80	PWHT, Ar+2% O_2

* PWHT : Postweld heat treatment (690℃x1Hr.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Ar+20% O_2 (15~25ℓ/min.)

KC-90SB9

For 9%Cr-1%Mo-V heat-resistant steel

Classifications

EN ISO 21952-A:2012 G CrMo91
EN ISO 21952-B:2012 G 62 M12 9C1MV

AWS A5.28:2005 ER90S-B9

Description

- For butt and fillet welding of power plant, heat exchanger and oil refineries such as 9%Cr-1%Mo-V heat-resistant steel.
- Excellent Creep strength, toughness, fatigue life, and corrosion resistance at elevated temperatures.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Preheat at 150°C to 300°C and post weld heat treatment at 740°C to 780°C 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	P	S	Cr	Mo
0.10	0.23	0.75	0.005	0.002	9.10	0.94

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28	min. 410	min. 620	min. 16	-	PWHT, Ar+5% CO_2
EN 21952–A	min. 415	min. 585	min. 17	≥ 47	PWHT
EN 21952–B	min. 410	min. 620	min. 15	-	PWHT
Example	540	750	20	90(@0℃)	PWHT, Ar+5% CO_2

* PWHT : Postweld heat treatment (760℃x2Hrs.)

Operating data

	Dia.(mm)	1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+5% CO_2 (15~25ℓ/min.)

KC-90SB9W

For 9%Cr-0.5%Mo-Nb-V-W heat-resistant steel

Classifications

AWS A5.28:2005 ER90S-B9 (mod.)

Description

- For butt and fillet welding of power plant, heat exchanger and oil refineries such as 9%Cr-0.5%Mo-Nb-VW heat-resistant steel.
- Excellent Creep strength, toughness, fatigue life, and corrosion resistance at elevated temperatures.
- Preheat at 150°C to 300°C and post weld heat treatment at 740°C to 780°C 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	P	S	Cr	Mo
0.10	0.24	0.54	0.007	0.003	8.88	0.43

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.28		min. 620		
Example	780	870	17	PWHT, Ar+5% CO_2
	670	785	18	PWHT, Ar+10% CO_2

* PWHT : Postweld heat treatment (760℃x2Hrs.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Ar+5%CO_2 (15~25ℓ/min.)
- Ar+10%CO_2 (15~25ℓ/min.)

KC-80SNi1

For 550MPa low temperature service steel(1.0%Ni)

Classifications

AWS A5.28:2005 ER80S-Ni1

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -45°C.
- suited for welding 1%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni
0.09	0.63	1.11	0.009	0.008	0.83

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -45℃	Remarks
AWS A5.28	min. 470	min. 550	24	27	
Example	576	675	34	124(@-45℃) 92(@-60℃)	As Weld

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+2% O_2 (15~25ℓ/min.)

KC-80SNi2

For 550MPa low temperature service steel(2.0%Ni)

Classifications

EN ISO 14341-A:2011	G 46 6 M13 2Ni2
AWS A5.28-2005	ER80S-Ni2

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -60°C.
- suited for welding 2%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni
0.09	0.52	1.08	0.007	0.005	2.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28	min. 470	min. 550	24	27	
Example	624	716	35	45(@-60℃) 41(@-70℃)	PWHT

* PWHT : Postweld heat treatment (620℃x1Hr.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+2% O_2 (15~25ℓ/min.)

KC-80SNi3

For 550MPa low temperature service steel(3.0%Ni)

Classifications

AWS A5.28:2005 ER80S-Ni3

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -75°C.
- suited for welding 2%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.

Typical chemical composition of wire (%)

C	Si	Mn	P	S	Ni
0.02	0.61	1.00	0.007	0.010	3.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -75℃	Remarks
AWS A5.28	min. 470	min. 550	24	27	
Example	494	583	33	177(@-60℃) 101(@-75℃)	PWHT

* PWHT : Postweld heat treatment (620℃x8Hrs.)

Operating data

Dia.(mm)		1.2	1.4
Current (Amp.)	Flat (PA/1G)	120 ~ 350	150 ~ 400
	Vertical (PF/3G)	80 ~ 180	100 ~ 250
	Overhead (PE/4G)	80 ~ 180	100 ~ 250

Polarity and Shielding gas

- DCEP (DC+)
- Mix : Ar+2% O_2 (15~25ℓ/min.)

WELDING CONDITION

As the appearance and properties of the deposited weld metal varies broadly in accordance with the welding conditions, select the welding conditions carefully.
The welding conditions and their effects are shown in Fig.1.

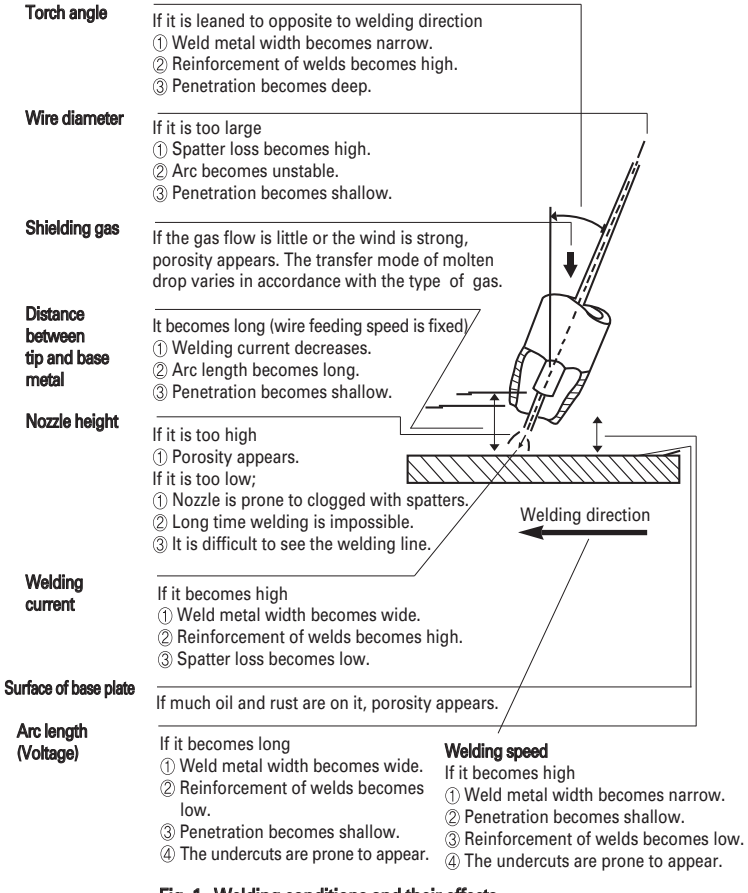


Fig. 1. Welding conditions and their effects

PAILPACK

Typical applications

The large-packaged wire reduces the time loss for changing the wire, which is particularly effective for robotic welding and other automatic welding.

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

Dia.(mm)	Weight (kg)	Pack Outer Dia.(mm)×Height (mm)	The
0.8, 0.9, 1.0	200, 250	507×820	Small Pack
1.2, 1.4	250	507×820	Small Pack
	300	507×870	Small Pack
	350,400	660×820	Large Pack
	450	660×870	Large Pack
1.6	350, 400	660×820	Large Pack
	450	660×870	Large Pack

Suggestions for handling

① Please load and fix at pallet when conveying. Use cart to keep on the horizontal status when transporting separately.

② Please clean up the inside of cable once or twice a week for smooth supply of wire.
(Use high pressure air)

③ Use the press board in the pack as equipped status when supplying.
Do not lift up or pull out while using, it may cause the tangle.

④ Before use, remove and pull out silica-gel to remove the moisture in the pack or spring for fixing to prevent trembling during transfer.

⑤ The pack might get humid, so keep it at the dry place.

PAILPACK

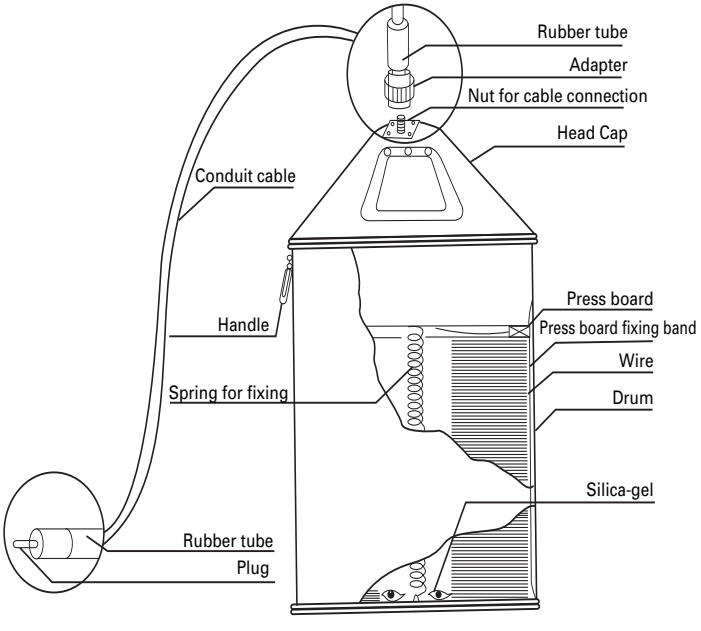


Fig. 2 . Schematic of pailpack

Typical applications

① Please open up the cover and pull out the silica-gel and spring for fixing outside of the pack.

② Fix up the head cap on the pack and link projecting bolt on the upper part of head cap with the adapter of cables.

③ Please link the part of rubber safety-tube to cables with welder suppling device using the fixing device.

④ Please use with withdrawing through the withdrawal device by cutting the wire fixed on the press valve inside of the pack.

Flux Cored Arc Welding Wires

FOR MILD STEEL

FOR HIGH TENSILE STRENGTH STEEL

FOR ATMOSPHERIC CORROSION RESISTING STEEL

FOR LOW TEMPERATURE SERVICE STEEL

FOR HEAT-RESISTING STEEL

FOR HARDFACING

FOR STAINLESS STEEL

Notes on usage

General information

① Since Flux cored wire is softer than solid MIG wire, do not excessively tighten the pressure roller in wire feeder.

② At flat butt welding, back-step process makes penetration stable. At horizontal position and over head position, straight sequence is good for getting flat bead appearance.

③ At horizontal fillet welding to primer-coating plate, blowhole defects such as pit, gas hole are apt to occure easily. Therefore, appropriate selection of wire and parameter setting for welding primer-coating plates are necessary.

④ When welding is done in excessive heat input and excessive welding currents, there are possibility to lower mechanical properties of a weld metal.

⑤ As cold cracks are caused by diffusible hydrogen, In general, it is necessary to remove it by selecting proper preheat and interpass temperature depending upon welding process.
Normally as tensile strength becomes higher It is better to apply higher preheat and interpass temperature.

⑥ When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input according to the required impact value.

⑦ Since rust, oil and dirt are apt to make welding defects such as pit, blowhole, Please remove them from the groove by grinder for instance before welding.

⑧ In order to minimize cracking of hardsurfacing, the followings must be taken into account :

❶ Preparation of base metal ❷ Heat and temperature control ❸ Penetration
❹ Welding distortion ❺ Underlaying

Welding power source

Use a DC power source with constant voltage and the polarity DC-EP except several self shielded items.

Shielding gas

Use CO_2 for shielding gas for general applications. Ar+CO_2 mixtures with 20~50% CO_2 can also be used, but compared with CO_2, porosity(pit and blowhole) is apt to occur. in welding with an Ar+CO_2 mixture should be 5mm longer than in use of CO_2.

Wire extension

Keep the wire extension at about 15mm for 0.9mm wire and 15~20mm for 1.2mm and 1.6mm wire. The use of a shorter wire extension may cause pit and wormhole. The wire extension in welding with an Ar+CO_2 mixture should be 5mm longer than in use of CO_2.

Notes on usage

Protection against wind

When wind velocity at the vicinity of an arc is more than 1m/sec. Blowhole is apt to occur and dissolution of nitrogen into the weld metal may deteriorate slag removal and decrease the ferrite content of the weld metal in case of stainless flux cored wire, thereby causing hot cracking. To prevent these problems. use an adequate shielding gas flow rate and a windscreen.

Welding fumes

Flux cored wires generate much more welding fumes in terms of the amount of fumes at unit time in comparison with that of covered electrodes. To protect welders from harmful welding fumes, be sure to use a local ventilator and an appropriate respirator.

Storage of wire

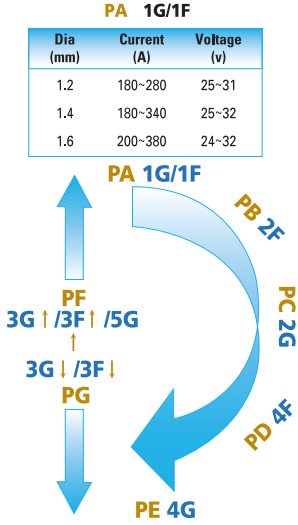
Once Flux cored wire picked up moisture, it cannot be dried at high temperature, unlike covered electrode. If a wire was left in a wire feeder in a high-temperature high-humidity atmosphere in summer season, a wet environment in rainy season or a dewfall environment at night in winter was unpacked, the wire should be kept in an area of low humidty.

※ Temp. below 30°C relative humidity below 60%

ISO recommendation of welding condition classified by welding position

CO_2 shielding gas, DCEP

100%CO_2 shielding gas



PA 1G/1F

Dia (mm)	Current (A)	Voltage (v)
1.2	180~280	25~31
1.4	180~340	25~32
1.6	200~380	24~32

PA 2F

Dia (mm)	Current (A)	Voltage (v)
1.2	180~300	25~32
1.4	190~340	26~32
1.6	200~380	24~32

PF 5G↑ /6G

Dia (mm)	Current (A)	Voltage (v)
1.2	180~240	26~30
1.4	190~240	26~30

PF 3G↑ /3F↑

Dia (mm)	Current (A)	Voltage (v)
1.2	160~240	26~30
1.4	160~250	25~31
1.6	180~260	25~31

PC 2G

Dia (mm)	Current (A)	Voltage (v)
1.2	180~240	25~30
1.4	180~260	24~31
1.6	200~280	25~30

PF 3G↓ /3F↓

Dia (mm)	Current (A)	Voltage (v)
1.2	160~220	25~28
1.4	180~240	24~30

PD 4F

Dia (mm)	Current (A)	Voltage (v)
1.2	180~250	24~30
1.4	190~240	25~31
1.6	220~250	26~31

PE 4G

Dia (mm)	Current (A)	Voltage (v)
1.2	160~240	25~28
1.4	160~240	24~30

Ar+CO_2 or Ar+O_2 shielding gas

- It is a general application that mixture gas normally use the lower 1~2 voltage than 100% CO_2 gas.
- 98%Ar-2%O_2 mixture most used thin plates shall be selected arc voltage about 22~26V.

The welding usage range of other big diameter products (Flat and H-fillet)

welding parameter	2.0(mm)	2.4(mm)	3.2(mm)
welding current	250~500	300~600	350~700
welding voltage	28~36	29~38	30~40

* Self-shideld FCW should be limited arc voltage about 23~27V that help crack resistance to control.

K-61T

For 420MPa high tensile steel

Classifications

EN ISO 17632-B:2015	T43 Z T1-1M21A	AWS A5.20-2005(R2015)	E61T-G
JIS Z 3313-2009	T43 0 T1-1MA H10	AWS A5.36-2016	E61T1-M21AY-G
		KS D 7104-2012	YFW-A430R

Description

- K-61T is designed for MAG welding of POS-AG steel and low silicon steel for all-position welding applications.
- It is applicable to use 400MPa class tensile strength steel welding.
- It is controll to lower Si component, so suitable for making zinc primer coated tank.
- Wire is a titania type flux cored wire that provides smooth arc, good slag removal and bead shape.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.03	0.12	0.80	0.013	0.009

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.20	min. 330	430~600	min. 22		
EN ISO 17632-B	min. 330	430~600	min. 20		
Example	520	580	29	30	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- We are recommend under the propriety welding condition, Because it is difficult to V-up welding for high current.

Package

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

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-70T

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 0 R C1 3 H10 T46 0 R M21 3 H10	AWS A5.20-2005(R2015)	E70T-1C/-1M
		AWS A5.36-2016	E70T1-C1/M21A0-CS1-H8
EN ISO 17632-B:2015	T49 0 T1-0C1(M21)A-U H10	KS D 7104-2012	YFW-C(A)50DM
JIS Z 3313-2009	T49J 0 T1-0C/MA-U H10		

Description

- It is designed for welding of 490MPa high tensile steels with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has better excellent deposition rate and provides smooth arc, low spatter levels.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2,
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.03	0.50	1.45	0.014	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 47		
Example	520	580	29	70	55	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- It is possible to use the 100% CO_2 & mixed gas, but you can get more advantage of welding properties when weld with 100% CO_2 gas.

Package

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

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71T

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 0 P C1 1 H10	AWS A5.20-2005(R2015)	E71T-1C
EN ISO 17632-B:2015	T49 0 T1-1C1A-U H10	AWS A5.36-2016	E71T1-C1A0-CS1-H8
JIS Z 3313-2009	T49J 0 T1-1CA-U H10	KS D 7104-2012	YFW-C50DR

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, smooth bead shape, high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.04	0.55	1.25	0.015	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 47		
Example	520	580	29	70	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TLF

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 2 P C1 1 H5	AWS A5.20-2005(R2015)	E71T-1C/-1M
	T46 2 P M21 1 H10	AWS A5.36-2016	E71T1-C1A2-CS1-H8
EN ISO 17632-B:2015	T49 2 T1-1C1A-U H5		E71T1-M21A2-CS1-H8
	T49 2 T1-1M21A-U H10	KS D 7104-2012	YFW-C(A)50DR
JIS Z 3313-2009	T49 2 T1-1C/M A-U H10		

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding general fabrications.
- It provides low fume generation and has good impact strength at low temperatures.
- It also provides excellent usability with stable arc, less spatter levels, smooth bead shape.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22	≥ 27		
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 47		
Example	520	570	28	80	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input
- When you use to Ar+CO_2 mixture gas, you should be lower 1~2 voltage than 100% CO_2 gas

Package

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

Approvals

ABS, BV, DNV, LR, KR, NK, RINA, RS, CCS, CWB, JIS,TUV, CE, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TM

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 0 R C1 1 H5 T46 0 R M21 1 H10	AWS A5.20-2005(R2015)	E71T-1C/-1M
		AWS A5.36-2016	E71T1-C1/M21A2-CS1-H8
EN ISO 17632-B:2015	T49 2 T1-1C1A-U H5 T49 2 T1-1M21A-U H10	KS D 7104-2012	YFW-A(C)502R
JIS Z 3313-2009	T49 2 T1-1C/MA-U H10		

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding.
- The shielding gas should be used Ar+20~25%CO_2 for welding, low spatter generation, smooth bead shape, high X-ray safety.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
  CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.03	0.59	1.44	0.013	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22	≥ 27		
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 27		
Example	550	610	30	65	50	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When you use the mixture gas, get a good weldbility.

Package

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

Approvals

ABS, BV, DNV, LR, RINA, TUV, CE, KS, JIS, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TMJ

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T46 4 P M21 1 H5	AWS A5.20-2005(R2015)	E71T-1MJ
EN ISO 17632-B:2015	T49 4 T1-1M21A-U H5	AWS A5.36-2016	E71T1-M21A4-CS1-H4
JIS Z 3313-2009	T49 4 T1-1MA-U H5	KS D 7104-2012	YFW-A502R

Description

- It is designed for the welding of 490MP high tensile steels with Ar+20%CO_2 shielding gas.
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- This wire is a titania type of flux cored wire for all-position welding.
- It features excellent mechanical properties, easy slag removal, low spatter generation, and good impact value at low temperatures down to -40°C.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.03	0.40	1.38	0.012	0.011	0.02

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 47	
Example	610	640	27	85	65	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

ABS, BV, DNV, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71T Plus

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 2 P C1/M21 1 H10	AWS A5.20-2005(R2015)	E71T-9C/-9M
EN ISO 17632-B:2015	T49 3 T1-1C1(M21)A H10	AWS A5.36-2016	E71T1-C1/M21A2-CS1-H8
JIS Z 3313-2009	T49 3 T1-1C/MA H10	KS D 7104-2012	YFW-C(A)502R

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding.
- It also provide excellent usability with stable arc, less spatter levels, smooth bead shape.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.03	0.40	1.20	0.015	0.012

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	560	600	28	80	60	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting.

Package

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

Approvals

ABS, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-70TB

For 490MPa high tensile steel (Basic type)

Classifications

EN ISO 17632-A:2015	T46 2 B M21 3 H5	AWS A5.20-2005(R2015)	E70T-5M
EN ISO 17632-B:2015	T49 3 T5-0M21A H5	AWS A5.36-2016	E70T5-M21A2-CS1-H4
JIS Z 3313-2009	T49 2 T5-0MA-U H5	KS D 7104-2012	YFW-A502B

Description

- It is designed for welding of 490MPa high tensile steel with only Ar/CO_2 mixtures.
- Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
- It has good CVN toughness at low temperatures and the weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.04	0.34	1.30	0.015	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	490	550	29	80	60	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Basic type is more generate a fume, so you have to use the ventilation system in small space.

Package

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

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TB

For 490MPa high tensile steel (Basic type)

Classifications

EN ISO 17632-A:2015	T42 2 B C1 1 H5	AWS A5.20-2005(R2015)	E71T-5C/-5M
	T46 2 B M21 1 H5	AWS A5.36-2016	E71T5-C1/M21A2-CS1-H8
EN ISO 17632-B:2015	T49 3 T5-1C1(M21)A H5	KS D 7104-2012	YFW-C(A)502B
JIS Z 3313-2009	T49 2 T5-1 C/MA-U H5		

Description

- It is designed for welding of 490MPa high tensile steel.
- Served as both carbon dioxide and mixture gas.
- It has excellent CVN impact properties at sub-zero temperatures.
- Wire is a fully basic type of flux cored wire for all-position welding.
- It provide good arc stability, low spatter generation.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.02	0.60	1.60	0.015	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	550	610	30	65	55	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When you use the 100% CO_2 gas, get a good weldbility.

Package

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

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-70ST

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 2 R C1 3 H10	AWS A5.20-2005(R2015)	E70T-9C
EN ISO 17632-B:2015	T49 3 T1-0C1A H10	AWS A5.36-2016	E70T1-C1A2-CS1-H8
JIS Z 3313-2009	T49 2 T1-0CA-U H10	KS D 7104-2012	YFW-C50DR

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- It is the most suitable for fillet welding of inorganic zinc-primer coated steels often used in the machineries, steel fabrications and construction industries.
- Wire is a titania type of flux cored wire for flat and horizontal position welding.
- The arc characteristics are so smooth and stable, even the most novice welder can produce good welds. It has easy slag removal and bigger leg of fillet welding.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.04	0.49	1.36	0.015	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥27	
Example	500	600	27	68	43	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

- It will be get to the 7~8mm leg of fillet weld at the welding condition of 340A*34V*30CPM

Package

Dia. (mm)	1.2	1.4	1.6	2.0	2.4
Spool (kg)	5, 12.5, 15, 20			25(Coil)	
Pailpack (kg)	100 ~ 300				

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-100

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 0 M C1 3 H5	AWS A5.18-2005	E70C-3C
EN ISO 17632-B:2015	T49 2 T15-0C1A H5	AWS A5.36-2016	E70T15-C1A0-CS1-H4
JIS Z 3313-2009	T49J 0 T15-0CA-U H5	KS D 7104-2012	YFW-C50DM

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Slag quantity is almost the same as a solid wire and multiple pass welding can be performed without removing slag.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- Deposition rate is up to about 20% higher than a solid wire's one.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	510	550	29	85	60	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

Package

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

KX-200

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 0 R C1 3 H10	AWS A5.20-2005(R2015)	E70T-1C
EN ISO 17632-B:2015	T49 0 T1-0C1A-U H10	AWS A5.36-2016	E70T1-C1A0-CS1-H8
JIS Z 3313-2009	T49J 0 T1-0CA-U H10	KS D 7104-2012	YFW-C50DM

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has good porosity resisitance and is applicable for fillet welding of inorganic zinc-primer coated steels.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 47		
Example	510	550	29	80	50	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

- Zinc primer coated steels should be enough drying when you use.

Package

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

Approvals

ABS, BV, DNV, LR, KR, NK, CCS, KS, JIS, TUV, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Flux Cored Welding Wire

KX-200H

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 2 R C1 3 H10	AWS A5.20-2005(R2015)	E70T-9C
EN ISO 17632-B:2015	T49 2 T1-0C1A-U H10	AWS A5.36-2016	E70T1-C1A2-CS1-H8
JIS Z 3313-2009	T49 2 T1-0CA-U H10	KS D 7104-2012	YFW-C50DM

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has better CVN toughness at low temperatures when compared to the KX-200.
- KX-200H is intended for semi-automatic, automatic, single- and multiple pass welding.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.04	0.56	1.61	0.013	0.01

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 47		
Example	517	610	28	80	50	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

• Zinc primer coated steels should be enough drying when you use.

Package

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

Approvals

ABS, BV, DNV, LR, KR, NK, RS,TUV, CWB, KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-200E

For 490MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T42 4 R C1 3 H10	AWS A5.20-2005(R2015)	E70T-9C
EN ISO 17632-B:2015	T49 4 T1-0C1A-U H10	AWS A5.36-2016	E70T1-C1A4-CS1-H8
JIS Z 3313-2009	T49 4 T1-0CA-U H10	KS D 7104-2012	YFW-C502M

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has good porosity resisitance and is applicable for fillet welding of inorganic zinc-primer coated steels and intended for semi-automatic, automatic, single- and multiple pass welding.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.03	0.60	1.68	0.013	0.019

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20	min. 390	490~670	min. 22	≥ 27		
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 47	
Example	550	590	30	75	55	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

Package

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

Approvals

ABS, BV, DNV, LR, NK

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-70CM

For 490MPa high tensile steel (Non slag type)

Classifications

EN ISO 17632-A:2015	T46 0 M M21 3 H5	AWS A5.18-2005	E70C-3M
EN ISO 17632-B:2015	T49 2 T15-0M21A H5	AWS A5.36-2016	E70T15-M21A0-CS1-H4
JIS Z 3313-2009	T49 2 T15-0MA H5	KS D 7104-2012	YFW-A50DM

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- Slag quantity is almost the same as a solid wire and multiple pass welding can be performed without removing slag.
- KX-70CM is intended for semi-automatic, automatic, single- and multiple pass welding.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.03	0.40	1.60	0.014	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	480	540	29	65	55	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	160 ~ 340	200 ~ 380	240 ~ 420
	HF (PC/2G)	(24~32)	(25~33)	(26~35)

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-706M

For 490MPa high tensile steel (Non slag type)

Classifications

EN ISO 17632-A:2015	T46 2 M M21 3 H5	AWS A5.18-2005	E70C-6M
EN ISO 17632-B:2015	T49 3 T15-0M21A H5	AWS A5.36-2016	E70T15-M21A2-CS1-H4
JIS Z 3313-2009	T49 3 T15-0MA H5	KS D 7104-2012	YFW-A502M

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has better CVN toughness at low temperatures when compared to the KX-70CM.
- It feature good penetration, high resisitance to porosity, good wetting behaviour as well as low hydrogen contents.
- KX-706M is intended for semi-automatic, automatic, single- and multiple pass welding.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.04	0.60	1.50	0.014	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	480	540	29	70	55	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	160 ~ 340	200 ~ 380	240 ~ 420
	HF (PC/2G)	(24~32)	(25~33)	(26~35)

Package

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

Approvals

ABS, BV, DNV, LR, RS, CWB, KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-706T

For 490MPa high tensile steel (Non slag type)

Classifications

EN ISO 17632-A:2015	T46 2 M M21 1 H5	AWS A5.18-2005	E70C-6M
EN ISO 17632-B:2015	T49 3 T15-1M21A H5	AWS A5.36-2016	E71T15-M21A2-CS1-H4
JIS Z 3313-2009	T49 3 T15-1MA H5	KS D 7104-2012	YFW-A502M

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for all positional welding.
- It has better stable arc with spray, good toe wetting.
- It feature good penetration, high resisitance to porosity, good wetting behaviour as well as low hydrogen contents.
- KX-706T is intended for semi-automatic, automatic, single- and multiple pass welding.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.05	0.39	1.64	0.010	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	459	587	28	77	48	Mix

Package

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

Approvals

TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-706MU

For 490MPa high tensile steel (Non slag type)

Classifications

EN ISO 17632-A:2015	T46 4 M M21 3 H5	AWS A5.18-2005	E70C-6M
EN ISO 17632-B:2015	T49 4 T15-0M21A-U H5	AWS A5.36-2016	E70T15-M21A4-CS1-H4
JIS Z 3313-2009	T49 4 T15-0MA U H5	KS D 7104-2012	YFW-A502M

Description

- It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It has better CVN toughness(-40°C) at low temperatures when compared to the KX-706M.
- It feature good penetration, high resisitance to porosity, good wetting behaviour as well as low hydrogen contents.
- KX-706MU is intended for semi-automatic, automatic, single and multiple pass welding.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
Mix	0.04	0.70	1.60	0.010	0.009

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27		
EN ISO 17632-A	min. 460	530~680	min. 20		≥ 47	
Example	557	634	24	87	74	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	160 ~ 340	200 ~ 380	240 ~ 420
	HF (PC/2G)	(24~32)	(25~33)	(26~35)

Package

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

Approvals

TUV, DB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-55T

For 520MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T46 0 P C1 1 H10	AWS A5.29-2010	E81T1-GC
EN ISO 17632-B:2015	T55 2 T1-1 C1 A H10	AWS A5.36-2016	E81T1-C1A0-CS1-H8
JIS Z 3313-2009	T55 0 T1-1 C A-U H10	KS D 7104-2012	YFW-C55DR

Description

- It is designed for welding of 520MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generaton, smooth bead shape and high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.54	1.50	0.013	0.011	0.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
JIS Z 3313	min. 460	550~740	min. 17		≥ 27	
Example	520	620	29	65	45	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KX-55

For 520MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T46 0 P C1 3 H10	AWS A5.29-2010	E80T1-GC
EN ISO 17632-B:2015	T55 2 T15-0C1 A H10	AWS A5.36-2016	E80T1-C1A0-CS1-H8
JIS Z 3313-2009	T55 0 T1-0 C A-U H10	KS D 7104-2012	YFW-C55DM

Description

- It is designed for welding of 520MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizantal position welding.
- It has good porosity resisitance and is applicable for fillet welding of inorganic zinc-primer coated steels.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.54	1.57	0.014	0.011	0.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
JIS Z 3313	min. 460	550~740	min. 17		≥ 27	
Example	540	630	26	100	60	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81T

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T50 3 1Ni P C1 1 H5	AWS A5.29-2010	E81T1-Ni1C
EN ISO 17632-B:2015	T55 3 T1-1C1 A-N2 H5	AWS A5.36-2016	E81T1-C1A2-Ni1-H4
JIS Z 3313-2009	T57 3 T1-1CAP-N2-U H5	KS D 7104-2012	YFW-C602R

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding with 1.0% Ni component.
- It provide good wet-in capabilities along with high impact values at low temperatures. (-40°C)

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.02	0.51	1.28	0.014	0.011	1.04

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
Example	580	630	28	75	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

ABS, BV, DNV, LR, NK, KR, RS, CWB, KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81T (NACE)

For 560MPa high tensile steel

Classifications

EN ISO 17632-A 2015	T50 5 1Ni P C1 1 H5	AWS A5.29-2010	E81T1-Ni1C
EN ISO 17632-B 2015	T55 5 T1-1C1 A-N2 H5	AWS A5.36-2016	E81T1-C1A/P4-Ni1-H4
JIS Z 3313-2009	T57 4 T1-1 C AP-N2-U H5	KS D 7104-2012	YFW-C602R

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding with 1.0% Ni component.
- It provide good wet-in capabilities along with high impact values at low temperatures. (-40°C)

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.49	1.30	0.012	0.005	0.91

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -46℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17	≥ 27		
Example (CO_2)	540	600	29		125	As weld
	490	565	32		105	620℃x2Hr.

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

ABS, BV, DNV, LR, NK, KR, RS, CWB, KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Flux Cored Welding Wire

K-81TM

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2008	T50 4 1Ni P M21 1 H10	AWS A5.29-2010	E81T1-Ni1M
EN ISO 17632-B:2008	T55 4 T1-1M21 A-N2 H10	AWS A5.36-2016	E81T1-M21A4-Ni1-H8
JIS Z 3313-2009	T57 4 T1-1 M A-N2-U H10	KS D 7104-2012	YFW-A602R

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding with 1.0% Ni component.
- It provide good wet-in capabilities along with high impact values at low temperatures. (-40°C)

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.03	0.35	1.17	0.013	0.010	0.92

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
Example	590	650	28	120	100	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When you use to Ar+CO_2 mixture gas, you should be lower 1~2 voltage than 100% CO_2 gas.

Package

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

Approvals

ABS, BV, DNV, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-80ST

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T50 3 1Ni R C1 4 H10	AWS A5.29-2010	E80T1-Ni1C
EN ISO 17632-B:2015	T55 3 T15-0C1A-N2 H10	AWS A5.36-2016	E80T1-C1A2-Ni1-H8
JIS Z 3313-2009	T57 3 T1-0CA-N2 H10	KS D 7104-2012	YFW-C602M

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshorre structures, bridges and general fabrications. (ASTM A537, JIS SM520/520/570)
- Wire is a titania type of flux cored wire for flat and horizontal position welding with 1% Ni component.
- It has very efficient welding due to higher deposition rate particularly and also has easy slag removal.
- Overall welding characteristics except tensile strength is very similar with the K-70ST.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.48	1.42	0.012	0.013	0.91

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
Example	560	637	26	80	45	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Flux Cored Welding Wire

KX-300

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T50 3 1Ni P C1 3 H10	AWS A5.29-2010	E80T1-Ni1C
EN ISO 17632-B:2015	T55 3 T15-0C1 A-N2 H10	AWS A5.36-2016	E80T1-C1A2-Ni1-H8
JIS Z 3313-2009	T57 3 T1-0 C A-N2 H10	KS D 7104-2012	YFW-C602M

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It provides excellent usability with stable arc, low spatter levels and deposition rate is much higher than a titania type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.47	1.34	0.014	0.011	0.97

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
Example	610	640	25	63	47	CO_2

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360	180 ~ 420
	HF (PC/2G)	180 ~ 300	180 ~ 350	220 ~ 400

- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-82T

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T50 4 2Ni P C1 1 H5	AWS A5.29-2010	E81T1-Ni2C
EN ISO 17632-B:2015	T55 4 T1-1C1A-N5-U H5	AWS A5.36-2016	E81T1-C1A4-Ni2-H4
JIS Z 3313-2009	T57 4 T1-1CA-N5-U H5		

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding with 2.0% Ni component.
- It feature excellent mechanical properties, easy slag removal, low spatter generaton, smooth bead shape and high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.35	1.17	0.012	0.010	2.02

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	584	673	24	120	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-82TM

For 560MPa high tensile steel

Classifications

EN ISO 17632-A:2015	T50 4 2Ni P M21 1 H10	AWS A5.29-2010	E81T1-Ni2M
EN ISO 17632-B:2015	T55 4 T1-1M21 A-N5-U H10	AWS A5.36-2016	E81T1-M21A4-Ni2-H8
JIS Z 3313-2009	T57 4 T1-1MA-N5-U H10		

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications.
- Wire is a titania type of flux cored wire for all-position welding with 2.0% Ni component.
- It features excellent mechanical properties, easy slag removal, low spatter generaton, smooth bead shape and high X-ray safety.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.03	0.55	1.26	0.013	0.01	1.92

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	573	655	24	113	75	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

KX-80D2M

For 560MPa high tensile steel (Non slag type MCW)

Classifications

AWS A5.28-2005(R2015)	E80C-GM	KS D 7104-2012	YFW-A60GM
AWS A5.36-2016	E80T15-M21A2-G		

Description

- It is designed for welding of 560MPa high tensile steel with outstanding mechanical properties.
- Typical applications include sending oil pipe, machineries, pressure vessels and creep resistance of high temperature.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- Slag quantity is almost the same as a solid wire and multiple pass welding can be performed without removing slag.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Mo
Mix	0.04	0.45	1.50	0.012	0.01	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.28		min. 550	min. 22		
JIS Z 3318		min. 560			
Example	620	680	27	45	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	160 ~ 340	200 ~ 380	240 ~ 420
	HF (PC/2G)	(24~32)	(25~33)	(26~35)

Package

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

K-90T

For 620MPa high tensile steel

Classifications

EN ISO 18276-B:2017 T62 4 T1-0C1 A-N3M1-U H5

AWS A5.29-2010 E90T1-K2C
AWS A5.36-2016 E90T1-C1A4-K2

Description

- It is designed for welding of 620MPa high tensile steel used for offshore, shipbuilding, pressure vessels.
- Typical applications include Alumium killed steel used in Flat position and H-fillet welding.
- Weld metal contains Ni elements and it makes good low temperature toughness and excellent crack resistance.
- It provides excellent weldability and mechanical properties for E500 steel.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.43	1.51	0.013	0.010	1.64

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -60℃	Remarks
AWS A5.29	min. 540	620~760	min. 17			
EN ISO 18276-B	min. 530	620~820	min. 15	≥ 47		
Example	612	690	26	77	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

ABS, BV, DNV, LR, RS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-91T

For 620MPa high tensile steel

Classifications

EN ISO 18276-A:2017	T55 4 Z Mn1NiMo R C1 1/T	AWS A5.29-2010	E91T1-G
JIS Z 3313-2009	T62 4 T1-1CAP-N2	AWS A5.36-2016	E91T1-C1A/P4-Ni1
		KS D 7104-2012	YFW-C602R

Description

- It is designed for welding of 620MPa high tensile steel for low temperature service.
- Typical applications include many high-strength low alloy such as steel ASTM A302, A572, A575, A734.
- Wire is a titania type of flux cored wire for all-position welding and it makes good low temperature toughness after PWHT at low temperatures down to -40°C.
- It provide smooth bead shape, easy slag removal, low spatter generation.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.42	1.37	0.012	0.01	0.93

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -10℃	IV (J) -40℃	Remarks
AWS A5.29	min. 540	620~760	min. 17			
EN ISO 18276-A	min. 550	640~820	min. 18		≥ 47	
Example (CO_2)	650	720	23	135	100	As weld
	610	660	26	120	85	620℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

KS, JIS, TUV

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-92T

For 620MPa high tensile steel

Classifications

EN ISO 18276-B:2017 T62 4 T1-1CA-N4M1-U H5

AWS A5.29-2010 E91T1-Ni2CJ
AWS A5.36-2016 E91T1-C1A4-Ni2 H4

Description

- It is designed for welding of 620MPa high tensile steel for offshore, shipbuilding, pressure vessels.
- Typical applications include Alumium killed steel used for all-position welding.
- Weld metal contains 2wt% Ni elements and it makes good low temperature toughness compared with K-91T.
- It needs for attention to avoid hot cracking used in high welding currrent and fast welding speed in case of one-side root pass welding.
- It provides excellent arc stability and lower spatter, fume generation and it makes good weldability.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.36	1.34	0.013	0.009	2.21

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -60℃	Remarks
AWS A5.29	min. 540	620~760	min. 17	≥ 27		
EN ISO 18276-B	min. 530	620~820	min. 15	≥ 47		
Example (CO_2)	615	667	26	109	94	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

K-100TK3

For 690MPa high tensile steel

Classifications

EN ISO 18276-A:2017	T62 2 Mn2NiMo R C1 1 H5	AWS A5.29-2010	E101T1-K3C
EN ISO 18276-B:2017	T69 2 T1-1C1 A-N3M2 H5	AWS A5.36-2016	E101T1-C1A0-K3-H4
JIS Z 3313-2009	T69 2 T1-1 C A-N3M2 H5	KS D 7104-2012	YFW-C60GR

Description

- It is designed for welding of 690MPa high tensile steel with outstanding mechanical properties.(SQ690)
- Typical applications include high tensile steels used in shipbuliding, offsore, chemical plants use for all-position welding.
- It provides excellent arc stability and lower spatter, fume generation and it makes good weldability.
- It could not be obtained excellent mechanical properties used in excessive welding heat input, suitable welding condition is required.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo	Ni	V
CO_2	0.03	0.30	1.40	0.011	0.012	0.01	0.45	1.86	0.004

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.29	min. 610	690~830	min. 16	≥ 27		
Example	681	752	24	112	81	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-100T5D2

For 690MPa high tensile steel (Basic type)

Classifications

EN ISO 18276-B:2017 T62 4 T5-0M21 P-G

AWS A5.29-2010 E100T5-D2M
AWS A5.36-2016 E100T5-M21P4-D2-H4

Description

- It is designed for welding of 690MPa high tensile steel with outstanding mechanical properties. (ASTM A514; A517; A710; JIS G 3128 SHY; HY-80; Q690 etc)
- It is a fully basic type of flux cored wire and weld metal contains 0.5wt%Mo.
- Diffusible Hydrogen content is under H5 and has good low temperature toughness.
- It could be weld for flat and horizontal position welding with mix gas, designed for 0.5%Mo steel appropriately.
- It could not be obtained excellent mechanical properties used in excessive welding heat input, suitable welding condition is required.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Mo
Mix	0.08	0.69	1.94	0.015	0.006	0.01	0.32

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
EN 18276-B	min. 530	620~820	min. 16	≥ 27	620℃x1Hr
Example	554	667	28	41	

Notes on usage and welding condition

Dia. (mm)		1.2	1.4	1.6
Current (Amp.)	F (PA/1G)	160 ~ 340	200 ~ 380	240 ~ 420
	HF (PC/2G)	(24~32)	(25~33)	(26~35)

Package

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

K-110TK3

For 760MPa high tensile steel

Classifications

EN ISO 18276-A:2017	T69 2 Mn2NiMo P C1 1 H5	AWS A5.29-2010	E111T1-K3C
EN ISO 18276-B:2017	T76 2 T1-1C1A-N3M2 H5	AWS A5.36-2016	E111T1-C1A4-K3-H4
JIS Z 3313-2009	T76 2 T1-1CA-N4M2 H5		

Description

- It is designed for welding of 760MPa high tensile steel with outstanding mechanical properties.
- Typical applications include high tensile steels that will be used a low temperature environment. (ASTM A514; A517; A710, JIS G 3128 SHY, HY-80, Q690 Grade)
- Wire is a titania type of flux cored wire for all-position welding.
- The weld metal contains about 2.0%Ni and has good impact value at low temperatures.
- It is compared to a low alloy E11018M electrode, higher deposition rates.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Mo
CO_2	0.04	0.51	1.72	0.011	0.009	2.04	0.42

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.29	min. 680	760~900	min. 15	≥ 27		
EN ISO 18276-B	min. 680	760~960	min. 13	≥ 27		
Example	751	834	21	100	75	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

Approvals

ABS, BV, DNV, KR, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Flux Cored Welding Wire

K-110TK3M

For 760MPa high tensile steel

Classifications

EN ISO 18276-A:2017 T69 2 Mn2NiMo P M21 1 H5
EN ISO 18276-B:2017 T76 2 T1-1M21A-N3M2 H5
JIS Z 3313-2009 T76 2 T1-1MA-N4M2 H5

AWS A5.29-2010 E111T1-K3M
AWS A5.36-2016 E111T1-M21A4-K3-H4

Description

- It is designed for welding of 760MPa high tensile steel with outstanding mechanical properties.
- Typical applications include high tensile steels that will be used a low temperature environment. (ASTM A514; A517; A710, JIS G 3128 SHY, HY-80, Q690 Grade)
- Wire is a titania type of flux cored wire for all-position welding.
- The weld metal contains about 2.0%Ni and has good impact value at low temperatures.
- It is compared to a low alloy E11018M electrode, higher deposition rates.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Mo
Mix	0.04	0.48	1.65	0.010	0.008	2.00	0.45

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.29	min. 680	760~900	min. 15		≥ 27	
EN ISO 18276-B	min. 680	760~960	min. 13		≥ 27	
Example	740	785	19	100	80	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

K-115TK4

For 760MPa high tensile steel

Classifications

EN ISO 18276-A:2017	T69 5 Mn2NiCrMo B C1 4 H5	AWS A5.29-2010	E110T5-K4C
EN ISO 18276-B:2017	T76 5 T5-0C1A-N4C1M2 H5	AWS A5.36-2016	E110T5-C1A6-K4-H4
JIS Z 3313-2009	T76 5 T5-0CA-N4C1M2 H5		

Description

- Fully basic type of flux cored wire replacing for covered wire E11018-M is designed for 760MPa grade steels.
- It makes excellent crack resistance and has a good weldability.
- Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
- Weld metal contains 2.5 wt%Ni elements and make a good low temperature toughness at -50°C.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.03	0.20	1.80	0.50	2.40	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -50℃	Remarks
AWS A5.29	min. 680	760~900	min. 15		≥ 27	
EN ISO 18276-B	min. 680	760~960	min. 13		≥ 27	
Example	736	817	17		49	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

K-115TK4M

For 760MPa high tensile steel

Classifications

EN ISO 18276-A:2017 T69 5 Mn2NiCrMo B M21 4
EN ISO 18276-B:2017 T76 5 T5-0M21A-N4C1M2
JIS Z 3313-2009 T76 5 T5-0MA-N4C1M2 H5

AWS A5.29-2010 E110T5-K4M
AWS A5.36-2016 E110T5-M21A6-K4-H4

Description

- It is designed for welding of 760MPa high tensile steel with outstanding mechanical properties.
- Typical applications include low alloy steel, quenched and tempered high strength steels such as ASTM A514, A517, HY-100, Q690 Grade.
- Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
- It provides soft welding arc, high deposition rate and low spatter generation.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo
Mix	0.05	0.20	1.80	0.50	2.50	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -50℃	Remarks
AWS A5.29	min. 680	760~900	min. 15		≥ 27	
EN ISO 18276-B	min. 680	760~960	min. 13		≥ 27	
Example	830	875	18	72	50	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

KX-800

For 840MPa high tensile steel

Classifications

EN ISO 18276-B:2017 T83 4 T1-0C1 A N4M2

AWS A5.29-2010 E120T1-GC
AWS A5.36-2016 E120T1-C1A4-G

Description

- It is designed for welding of 840MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, bridges and general fabrications.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- It provides excellent usability with stable arc, low spatter levels and deposition rate is much higher than a titania type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Mo
CO_2	0.05	0.54	1.69	0.011	0.006	2.39	0.55

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.29	min.745	830 ~ 970	min.14			CO_2
Example	790	860	23	63	56	

☞ This results are mechanical properties after aging treatment at 100°C/48hr.

Notes on usage and welding condition

Dia. (mm)		1.2	1.4
Current (Amp.)	F (PA/1G)	140 ~ 300	160 ~ 360
	HF (PC/2G)	180 ~ 300	180 ~ 350

- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

K-120TG

For 840MPa high tensile steel

Classifications

EN ISO 18276-B:2017	T83 4 T1 1 C1 A-N4M2	AWS A5.29-10	E121T1-G
		AWS A5.36-12	E121T1-C1A4-G

Description

- It is designed for welding of 840MPa high tensile steel with outstanding mechanical properties.
- Typical applications include machineries, bridges and military equipment.
  (PFS 700; HSA/HSB 800; HSLA-100, Q690)
- Because diffusible hydrogen level is controlled under 3ml/100g in the weld metal, it has excellent crack resistance and high strength.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Mo
CO_2	0.03	0.39	1.69	0.010	0.006	2.66	0.67

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
Example (CO_2)	792	864	19	85	50	AWS spec.
	780	835	19	75	60	PFS-700

☞ This results are mechanical properties after aging treatment at 100°C/48hr.

Notes on usage and welding condition

Dia. (mm)		1.2	1.4
Current (Amp.)	F (PA/1G)	160 ~ 260	180 ~ 280
	HF (PC/2G)	(25~32)	(26~33)
	VU (PF/3G)	160~240 (26~30)	

Package

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

K-145TM

For 1000MPa high tensile steel

Classifications

EN ISO 18276-A:2017 T89 A Mn2Ni1CrMo B M21 3 H5
AWS A5.36-2016 E130T5-M21AY-G-H4

Description

- It is designed for welding of 1000MPa high tensile steel with the wind velocity equipment.
- Typical applications include low alloy steel, quenched and tempered high strength steels such as EN S890, G32 Grade.
- Wire is a fully basic type of flux cored wire for flat and horizontal position welding.
- It provides soft welding arc, high deposition rate and low spatter generation.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo
Mix	0.03	0.35	1.43	0.44	1.85	0.42

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	IV (J) 0℃	Remarks
EN ISO 18276-A	min. 890	940~1180	min. 15	≥ 47		
Example	1000	1040	17	59	52	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In case of heavy plate welding, preheat and maintain interpass temperature at 100~200°C in order to prevent crack at low temperatures.

Package

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

K-NGS4

For 490MPa high tensile steel (Self-Shielded, multi pass)

Classifications

EN ISO 17632-A:2015	T42 ZY NO 3	AWS A5.20-2005	E70T-4
EN ISO 17632-B:2015	T49 Z T4-0NOA	AWS A5.36-2016	E70T4-AZ-CS3
JIS Z 3313-2009	T49 T4-0 N A	KS D 7104-2012	YFW-S50GB

Description

- It is designed for welding of 490MPa high tensile steel and self-shielded wire to facilitate welding outdoors.
- Typical applications include general fabrication and structural work requiring no impact properties.
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal.
- It has to use DECP. (electrode positive)

Welding positions

Polarity & shielding gas

- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.20	min. 390	490~670	min. 22	
EN ISO 17632-B	min. 390	490~670	min. 18	
Example	460	540	23	

Notes on usage and welding condition

Dia. (mm)		2.0	2.4	3.2
Current (Amp.)	F (PA/1G)	260 ~ 360	280 ~ 360	300 ~ 400
	HF (PC/2G)	(23~25)	(24~25)	(25~27)

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	1.6	2.4	3.2
Spool (kg)	15, 20		
Coil (kg)		20, 25, 30	

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-NGS10

For 490MPa high tensile steel (Self-Shielded, single pass)

Classifications

EN ISO 17632-A:2015	T42 Z V NO 3	AWS A5.20-2005	E70T-10
EN ISO 17632-B:2015	T49 Z T10-1NOS	AWS A5.36-2016	E70T10S-AZ-CS3
JIS Z 3313-2009	T49 T10-0 N S	KS D 7104-2012	YFW-S50GB

Description

- It is designed for welding of 490MPa high tensile steel and self-shielded wire to facilitate welding outdoors.
- Typical applications include general fabrication and structural work requiring no impact properties. (ASTM A36 Gr. AII; A109 Gr. AII; A283 Gr. A,B,C,D; A284 C,D; A285 Gr. A,B,C; A288 Gr. 1; A372 type I; A500 Gr. AII; A501 Gr. all)
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal.
- It has to use DECN (electrode negative).

Welding positions

Polarity & shielding gas

- DCEP (DC-)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Al
	0.10	0.11	0.53	0.015	0.01	1.10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.20		min. 490		
EN ISO 17632-B	min. 390	490~670	min. 18	
Example	480	530	22	

Notes on usage and welding condition

Dia. (mm)		2.0	2.4	3.2
Current (Amp.)	F (PA/1G)	260 ~ 360 (23~25)	280 ~ 360 (24~25)	300 ~ 400 (25~27)
	HF (PC/2G)			

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	1.6	2.4	3.2
Spool (kg)	15, 20		
Coil (kg)		20, 25, 30	

Approvals

JIS, KS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-NGS11

For 490MPa high tensile steel (Self-Shielded, multi pass)

Classifications

EN ISO 17632-A:2015	T42 ZY NO 1	AWS A5.20-2005	E71T-11
EN ISO 17632-B:2015	T49 Z T11-1NOA	AWS A5.36-2016	E71T11-AZ-CS3
JIS Z 3313-2009	T49 T7-1 N A	KS D 7104-2012	YFW-S50GB

Description

- It is designed for welding of 490MPa high tensile steel and self-shielded wire to facilitate welding outdoors.
- Typical applications include general fabrication and structural work requiring no impact properties. (ASTM A36 Gr. AII; A109 Gr. AII; A283 Gr. A,B,C,D; A284 C,D; A285 Gr. A,B,C; A288 Gr. 1; A372 type I; A500 Gr. AII; A501 Gr. all)
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal
- It has to use DECN. (electrode negative)

Welding positions

Polarity & shielding gas

- DCEP (DC-)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Al
	0.10	0.10	0.55	0.015	0.006	1.21

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.20	min. 390	490~670	min. 20	
EN ISO 17632-B	min. 390	490~670	min. 18	
Example	500	530	23	

Notes on usage and welding condition

Dia. (mm)		0.9	1.2	1.6
Current (Amp.)	F (PA/1G)	80 ~ 120	120 ~ 180	180 ~ 270
	HF (PC/2G)	(18~22)	(21~23)	(22~24)
	VU (PF/3G)		100~160(22~25)	

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	0.9	1.2	3.2
Spool (kg)	5, 12.5, 15, 20		

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-NGS

For 490MPa high tensile steel (Self-Shielded, single pass)

Classifications

EN ISO 17632-A:2015	T42 Z V NO 1	AWS A5.20-2005	E71T-GS
EN ISO 17632-B:2015	T49 ZTG-1NOS	AWS A5.36-2016	E71T14S-AZ-CS3
JIS Z 3313-2009	T49TG-1 N S	KS D 7104-2012	YFW-S50GB

Description

- It is designed for welding of 490MPa high tensile steel and self-shielded wire to facilitate welding outdoors.
- Typical applications include general fabrication and structural work requiring no impact properties. (ASTM A36 Gr. AII; A109 Gr. AII; A283 Gr. A,B,C,D; A284 C,D; A285 Gr. A,B,C; A288 Gr. 1; A372 type I; A500 Gr. AII; A501 Gr. all)
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal.
- It has to use DECN. (electrode negative)

Welding positions

Polarity & shielding gas

- DCEP (DC-)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Al
	0.10	0.10	0.55	0.014	0.006	1.21

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.20		min. 490		
EN ISO 17632-B	min. 390	490~670	min. 18	
Example	489	520	22	

Notes on usage and welding condition

Dia. (mm)		0.9	1.2	1.6
Current (Amp.)	F (PA/1G)	80 ~ 120	120 ~ 180	240 ~ 280
	HF (PC/2G)	(18~22)	(21~23)	(22~24)
	VU (PF/3G)		100~160(22~25)	

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	0.9	1.2	3.2
Spool (kg)	5, 12.5, 15, 20		

Approvals

KS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-NGS8

For 490MPa high tensile steel(self-Shielded, multi pass)

Classifications

EN ISO 17632-B:2015	T49 3 T8-1NOA	AWS A5.20-2005	E71T-8
JIS Z 3313-2009	T49 3 T7-1NA	AWS A5.36-2016	E71T8-A2-CS3
		KS D 7104-2012	YFL-S503B

Description

- For 490MPa high tensile steel & self-shielded wire to facilitate welding outdoors.
- For single and multiple-pass welding in all positions.
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal.
- The using polarity is DCEN. (wire negative)

Welding positions

Polarity & shielding gas

- DCEP (DC-)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Al
	0.04	0.17	0.81	0.010	0.010	0.68

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~670	min. 22	≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 27	
Example	410	508	27	50	

Notes on usage and welding condition

Dia. (mm)		1.4	1.6	2.0	2.4
Current (Amp.)	F (PA/1G)	220 ~ 240	260 ~ 280	280 ~ 300	300 ~ 320
	HF (PC/2G)	(22~23)	(23~24)	(23~24)	(24~25)

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	1.4	1.6	1.8	2.0	2.4
Spool (kg)		15, 20			
Coil (kg)			20, 25, 30		

K-NGSNi1

For 490MPa high tensile steel(self-Shielded, multi pass)

Classifications

EN ISO 17632-B:2015	T49 3 T8-1NOA-N2	AWS A5.29-2010	E71T8-Ni1
JIS Z 3313-2009	T49 3 TG-1NA-N2	AWS A5.36-2016	E71T8-A2-Ni1

Description

- For 490MPa high tensile steel & self-shielded wire to facilitate welding outdoors.
- The weld metal contain 0.5~1% Ni so, good impact value at low temperatures.(-30℃)
- For single and multiple-pass welding in all positions.
- It has good arc stability, low spatter generation, high efficiency, good bead shape and slag removal.
- The using polarity is DCEN. (wire negative)

Welding positions

Polarity & shielding gas

- DCEP (DC-)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Al
	0.05	0.17	0.87	0.01	0.01	0.95	0.77

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.29	min. 400	490~620	min. 20	≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 27	
Example	440	544	22	70	

Notes on usage and welding condition

Dia. (mm)		1.4	1.6	2.0	2.4
Current (Amp.)	F (PA/1G)	220 ~ 240	260 ~ 280	280 ~ 300	300 ~ 320
	HF (PC/2G)	(22~23)	(23~24)	(23~24)	(24~25)

- Self-shielded FCW is to more generate a fume than titania type FCW So you have to use the ventilation system in small space.

Package

Dia. (mm)	1.4	1.6	1.8	2.0	2.4
Spool (kg)		15, 20			
Coil (kg)			20, 25, 30		

Electro Gas Welding

EGW single & tandem

Electro Gas Welding (EGW)

EGW applications

The purpose of EGW is highly efficient welding for vertical-up butt welding for heavy plate.
This process use the auto-carriage, it has excellent low temperature thoughness at high heat input. (200~270KJ/cm)
Welding wire type divide by single & tandem, should be used to suitable type wire.

EGW welding machine

Face part

Root part

Welding shape

Descriptions

① It is designed for automatic V-up butt welding.
② Wire provides high deposition rate with a welding wire due to high welding condition.
③ It feature excellent mechanical properties, easy slag removal, low spatter generation, good bead shape.

Notes on usage and welding condition

① It should be used only DCEP polarity.
② Once a wire was unpacked, the wire should be kept in an area of low humidity. If this note doesn't keep, it is possible to occur of weld defect.

Speccification

Type	Brand name	Classification	
		AWS	JIS
For Single	**K-EG2 (3Y)**	A5.26-1997(R2003) EG70T-2	JIS Z 3319-1999 YFEG-22C
	Approvals	ABS, BV, DNV, LR, KR, NK, CCS	
	K-EG3 (5Y)	A5.26-1997(R2003) EG82T-G	JIS Z 3319-1999 YFEG-20G
	Approvals	-	
Self-shield (Non gas type)	**K-ES2 (2Y)**	A5.26-1997(R2003) EG72T-1	-
	Approvals	-	

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Electro Gas Welding

EGW single & tandem

Typical chemical compositon of all-weld metal (%)

100% CO_2 Welding

Brand name	Typical chemical composition of all-weld metal (%)						
	C	Si	Mn	P	S	Ni	Mo
K-EG2 (3Y, Single)	0.04	0.33	1.65	0.012	0.011	0.03	0.24
K-EG3 (5Y, Single)	0.04	0.20	1.50	0.011	0.012	1.80	0.24
K-ES2 (2Y, Single) (Non gas type)	0.08	0.32	1.39	0.014	0.006	0.25	0.15

Typical mechanical properties of all-weld metal

100% CO_2 Welding

Brand name		Mechanical Properties				
		Y.S. (N/mm^2)	T.S. (N/mm^2)	El. (%)	IV (J)	Heat Input (KJ/cm)
Single	K-EG2 (3Y)	448	576	30	-20°C : 80	260.0
	K-EG3 (5Y)	520	660	25	-60°C : 50	246.0
K-ES2 (2Y, Single) (Non gas type)		500	594	30	-30°C : 44	375.0

Notes on usage and welding condition

Brand name		Dia. (mm)	Polarity	Welding condition (A)	Welding speed	Shielding gas
Single	K-EG2	1.6	DC+	340 ~ 380	3~4 CPM	100% CO_2, (35ℓ/min)
	K-EG3			(34 ~ 38)		
K-ES2 (Single) (Non gas type)		2.4	DC+	470 ~ 530 (37 ~ 43)		Non gas type

Welding positions

Package

Brand name	Dia. (mm)	Weight (Kg)
K-EG2	1.6	15, 20
K-EG3		
K-ES2	2.4	25

K-71UT

For 490MPa low temperature service steel

Classifications

EN ISO 17632-A:2015	T42 4 P C1 1 H5	AWS A5.20-2005(R2015)	E71T-9CJ H4
EN ISO 17632-B:2015	T49 4 T1-1C1 A-U H5	AWS A5.36-2016	E71T12-C1A4-CS1-H4
JIS Z 3313-2009	T49 4 T1-1 C A-U H5	KS D 7104-2012	YFL-C504R

Description

- It is designed for welding of 490MPa low temperature steels.
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, and good impact value at low temperatures down to -40°C.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.30	1.35	0.014	0.010	0.39

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 47	
Example	540	600	27	76	55	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

ABS, BV, DNV, LR, KR, NK, RS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71UTM

For 490MPa low temperature service steel

Classifications

EN ISO 17632-A:2015	T42 4 P M21 1	AWS A5.20-2005(R2015)	E71T-9MJ
EN ISO 17632-B:2015	T49 4 T1-1M21 A-U	AWS A5.36-2016	E71T12-M21A4-CS1
JIS Z 3313-2009	T49 4 T1-1M A-U	KS D 7104-2012	YFL-A504R

Description

- It is designed for the welding of 490MPa low-temperature steels with Ar+20%CO2 shielding gas.
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- This wire is a titania type of flux cored wire for all-position welding.
- It features excellent mechanical properties, easy slag removal, low spatter generation, and good impact value at low temperatures down to -40°C.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.02	0.40	1.35	0.017	0.018	0.35

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20	min. 390	490~670	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 47	
Example	610	640	27	140	125	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

K-71TSR

For 490MPa low temperature service steel (PWHT)

Classifications

EN ISO 17632-A:2015	T42 4 P C1 1 H5	AWS A5.20-2005(R2015)	E71T-12CJ H4
EN ISO 17632-B:2015	T49 4 T1-1C1 AP-N1-U H5	AWS A5.36-2016	E71T12-C1A/P4-CS2-H4
JIS Z 3313-2009	T49 4 T1-1C AP-N1-U H5	KS D 7104-2012	YFL-C504R

Description

- It is designed for welding of 490MPa low temperature steels. (NACE/API steel)
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, and good impact value at low temperatures down to -40°C in the PWHT conditions.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.02	0.45	1.41	0.010	0.009	0.41

Typical mechanical properties of all-weld metal

		Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20		min. 390	490~620	min. 22		≥ 27	
EN ISO 17632-B		min. 390	490~670	min. 18		≥ 47	
Example (CO_2)	As-weld	578	612	25	138	119	
	PWHT	558	600	27	69	52	620℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TSRM

For 490MPa low temperature service steel (PWHT)

Classifications

EN ISO 17632-A:2015	T42 4 P M21 1 H10	AWS A5.20-2005(R2015)	E71T-12MJ H8
EN ISO 17632-B:2015	T49 4 T1-1 M21 AP-N1-U H10	AWS A5.36-2016	E71T12-M21A/P4-CS2-H8
JIS Z 3313-2009	T49 4 T1-1 M AP-N1-U H10	KS D 7104-2012	YFL-A504R

Description

- It is designed for welding of 490MPa low temperature steels. (NACE/API steel)
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, and good impact value at low temperatures down to -40°C in the PWHT conditions.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.03	0.50	1.50	0.008	0.010	0.42

Typical mechanical properties of all-weld metal

		Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.20		min. 390	490~620	min. 22		≥ 27	
EN ISO 17632-B		min. 390	490~670	min. 18		≥ 47	
Example	As-weld	580	610	27	128	85	
(Mix)	PWHT	560	600	27	74	55	620℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

ABS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TP

For 490MPa low temperature service steel (ASME code)

Classifications

EN ISO 17632-A:2015	T42 3 P C1 1 H5	AWS A5.20-2005(R2015)	E71T-12C/12M H4
	T42 3 P M21 1 H10	AWS A5.36-2016	E71T12-C1/M21A2-CS2-H4
EN ISO 17632-B:2015	T49 3 T1-1 C1 A H5	KS D 7104-2012	YFL-A/C503R
	T49 3 T1-1 M21 A H10		
JIS Z 3313-2009	T49 3T1-1C/M A H10		

Description

- It is designed for welding of 490MPa tensile strength steel.
- Typical applications include shipbuilding, pressure vessel, bridges, construction industries etc.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature easy slag removal, low spatter generation, good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S
CO_2	0.03	0.60	1.00	0.013	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.20	min. 390	490~620	min. 22		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	580	610	27	130	100	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

K-71TNi2

For 490MPa low temperature service steel

Classifications

EN ISO 17632-A:2015	T42 6 2Ni P C1 1 H5	AWS A5.29-10	E71T1-GC
EN ISO 17632-B:2015	T49 6 T1-1C1 A-N5 H5	AWS A5.36-2016	E71T12-C1A8-G-H4
JIS Z 3313-2009	T49 6 T1-1 C A-N5 H5	KS D 7104-2012	YFL-C506R

Description

- It is designed for welding of 490MPa low temperature steels.
- Typical applications include railcar, automotive machinery, shipbuilding, bridges, heavy equipment etc.
- Wire is a titania type of flux cored wire for all-position welding.
- Weld metal contains 2.0wt%Ni and has a good low temperature toughness at -60°C.
- It provides low spatter generation and easy slag removal.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.33	1.18	0.011	0.010	2.15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.29	min. 390	490~670	min. 22	≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18	≥ 27	
Example	538	584	30	82	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Flux Cored Welding Wire

K-80TK2

For 560MPa low temperature service steel (1.5% Ni)

Classifications

EN ISO 17632-A:2015	T50 6 1.5Ni M C1 4 H5	AWS A5.29-2010	E80T1-K2C H4
EN ISO 17632-B:2015	T55 6 T1-0C1 A-N3-U H5	AWS A5.36-2016	E80T1-C1A8-K2-H4
JIS Z 3313-2009	T55 6 T1-0C A-N3-U H5	KS D 7104-2012	YFL-C506M

Description

- It is designed for welding of 560MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60°C.
- It feature good porosity resistance and easy slag removal and deposition rate is higher than a titania type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.45	1.50	0.014	0.010	1.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -60℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	550	640	25	100	50	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature.

Package

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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81TK2

For 560MPa low temperature service steel (1.5% Ni)

Classifications

EN ISO 17632-A:2015	T50 6 1.5Ni P C1 1 H5	AWS A5.29-2010	E81T1-K2C H4
EN ISO 17632-B:2015	T55 6 T1-1C1 A-N3-U H5	AWS A5.36-2016	E81T1-C1A8-K2-H4
JIS Z 3313-2009	T55 6 T1-1C A-N3-U H5	KS D 7104-2012	YFL-C506R

Description

- It is designed for welding of 560MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a metal type of flux cored wire for all-position welding.
- The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60°C.
- It feature good porosity resistance and easy slag removal and deposition rate is higher than a titania type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.45	1.50	0.012	0.009	1.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -60℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	550	640	25	120	55	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

ABS, BV, DNV, KR, LR, NK, RS, KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81TK2M

For 560MPa low temperature service steel (1.5% Ni)

Classifications

EN ISO 17632-A:2015	T50 6 1.5Ni P M21 1 H5	AWS A5.29-2010	E81T1-K2M
EN ISO 17632-B:2015	T55 6T1-1M21 A-N3-U H5	AWS A5.36-2016	E81T1-M21A8-K2
JIS Z 3313-2009	T55 6 T1-1M A-N3-U H5	KS D 7104-2012	YFL-A506R

Description

- It is designed for welding of 560MPa high tensile steel for low temperature service of below -60°C.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a metal type of flux cored wire for all-position welding.
- The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60°C.
- It feature good porosity resistance and easy slag removal and deposition rate is higher than a titania type.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.03	0.43	1.45	0.012	0.009	1.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -60℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	550	640	25	120	95	Mix

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

K-81TSR

For 560MPa low temperature service steel (PWHT, CTOD)

Classifications

EN ISO 17632-A:2015	T50 6 1.5Ni P C1 1 H5	AWS A5.29-2010	E81T1-K2C H4
EN ISO 17632-B:2015	T55 6 T1-1C1 AP-N3-U H5	AWS A5.36-2016	E81T1-C1G8-K2-H4
JIS Z 3313-2009	T55 6 T1-1C AP-N3-U H5	KS D 7104-2012	YFL-C506R

Description

- It is designed for welding of 560MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature easy slag removal, low spatter generation, and good impact value at low temperature down to -60°C in the PWHT conditions.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.02	0.31	1.21	0.011	0.010	1.47

Typical mechanical properties of all-weld metal

		Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -60℃	Remarks
AWS A5.29		min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B		min. 460	550~740	min. 17		≥ 47	
Example	As-weld	570	640	25	125	90	620℃x2Hr
	PWHT	520	600	29	85	65	

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

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

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81TK2 Plus

For 560MPa low temperature service steel (1.5% Ni)

Classifications

EN ISO 17632-A:2015	T50 6 1.5Ni P C1 1 H5	AWS A5.29-2010	E81T1-K2C H4
EN ISO 17632-B:2015	T55 6 T1-1C1 A-N3-U H5	AWS A5.36-2016	E81T1-C1A8-K2-H4
JIS Z 3313-2009	T55 6 T1-1C A-N3-U H5	KS D 7104-2012	YFL-C506R

Description

- It is designed for welding of 560MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a titania type of flux cored wire for all-position welding.
- The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60°C.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.48	1.52	0.012	0.010	1.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -60℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 47	
Example	582	650	27	115	83	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

ABS, BV, DNV.GL, LR, KS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-85TNi3M

For 560MPa low temperature service steel (3% Ni)

Classifications

EN ISO 17632-A 2015	T50 7 3Ni B M21 3 H5
EN ISO 17632-B 2015	T55 7 T4-0 M21 P N7-U H5
JIS Z 3313-2009	T55 7 T4-0 M21 P-N7-U H5
AWS A5.29-2010	E80T5 Ni3M H4
AWS A5.36-2016	E80T5 M21 P 10 Ni3 H4

Description

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
Mix	0.05	0.27	1.02	0.008	0.004	3.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -70℃	IV (J) -95℃	Remarks
AWS A5.29	min. 470	550~690	min. 19	≥ 27		
EN ISO 17632-B	min. 460	550~740	min. 17	≥ 47		
Example	535	605	29	107	50	610℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

K-91TK2

For 620MPa low temperature service steel (1.5% Ni)

Classifications

EN ISO 18276-A:2017	T55 4 Mn1.5Ni P C1 1 H5	AWS A5.29-2010	E91T1-K2C H4
EN ISO 18276-B:2017	T62 4 T1-1 C1 A-N3M1-U H5	AWS A5.36-2016	E91T1-C1A4-K2-H4
JIS Z 3313-2009	T62 4 T1-1CA-N3-U H5	KS D 7104-2012	YFL-C504R

Description

- It is designed for welding of 620MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- Wire is a metal type of flux cored wire for all-position welding.
- The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60°C.
- It feature good weldability together with excellent properties for the semi-automatic and automatic welding of many higher strength steels.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.03	0.45	1.27	0.012	0.009	1.45

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.29	min. 540	620~760	min. 17	≥ 27		
EN ISO 18276-B	min. 530	620~820	min. 15		≥ 47	
Example	550	640	25	135	90	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

RS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-91TSR

For 620MPa low temperature service steel (PWHT, CTOD)

Classifications

EN ISO 18276-B:2017	T62 5 T1-1 C1 AP-N4M21 H5	AWS A5.29-2010	E91T1-Ni2CJ H4
JIS Z 3313-2009	T62 5 T1-1C AP-N5 H5	AWS A5.36-2016	E91T1-C1A6-Ni2-H4
		KS D 7104-2012	YFL-C504R

Description

- It is designed for welding of 620MPa high tensile steel for low temperature service.
- Typical applications include offshore structures, LNG and LPG carriers and storage tank.
- It could be able to all-position welding, weld metal contains 2.0%Ni and has a good low temperature toughness at -60°C after PWHT.
- It provides soft welding arc, high deposition rate and low spatter generation.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni
CO_2	0.04	0.37	1.38	0.009	0.002	2.18

Typical mechanical properties of all-weld metal

		Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -60℃	Remarks
AWS A5.29		min. 540	620~760	min. 17	≥ 27		
Example	As-weld	617	674	24	103	88	
	PWHT	567	630	27	117	90	600℃x8Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- In order to prevent crack at low temperatures, preheat and maintain interpass temperature at 100~200°C.

Package

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

Approvals

KS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TS

For 490MPa corrosion resisting steel against sulfic acid

Classifications

EN ISO 17632-A:2015	T42 0 P C1 1	AWS A5.36-2016	E71T1-C1A0-CS1 H8
EN ISO 17632-B:2015	T49 0 T1-1C1A-U	KS D 7104-2012	YFW-C50DR
JIS Z 3313-2009	T49 0 T1-1CA		

Description

- It is designed for the mild and medium tensile steels that are used to for flue gasdesulfurization facilities.
- The weld metal contain Cu, Co alloys and has good anticorrosion against sulfic acid.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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	0.010	0.38	0.10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	TEMP/(500℃) (MPa)	El. (%)	IV (J) 0℃	Remarks
EN ISO 17632-B	min. 390	490~670		min. 22	≥ 47	
JIS Z 3313	min. 400	490~670		min. 18	≥ 47	
Example	520	580	420	29	64	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

KS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-71TSS

For 490MPa corrosion resisting steel against sulfic acid

Classifications

EN ISO 17632-A:2015	T42 0 P C1 1	AWS A5.36-2016	E71T1-C1A0-CS1 H8
EN ISO 17632-B:2015	T49 0 T1-1C1A-U	KS D 7104-2012	YFW-C50DR
JIS Z 3313-2009	T49J 0 T1-1CA-U H5		

Description

- It is designed for the mild and medium tensile steels that are used to for flue gasdesulfurization facilities.
- The weld metal contain Ni, Cu alloys and has good anticorrosion against sulfic acid and hydrochloric acid.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Ni	Cu
CO_2	0.05	0.45	0.85	0.012	0.010	0.20	0.33

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
EN ISO 17632-B	min. 390	490~670	min. 22	≥ 47	
JIS Z 3313	min. 400	490~670	min. 18	≥ 47	
Example	483	597	29	75	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

KS, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81TA1

For heat-resisting steel (0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (Mo) P C1 1	AWS A5.29-2010	E81T1-A1C
EN ISO 17634-B:2015	T55T1-1C1-2M3	AWS A5.36-2016	E81T1-C1PZ-A1
JIS Z 3318-2010	T55T1-1C-2M3	KS D 7121-2015	YFM-C

Description

- It is designed for welding of 560MPa 0.5% Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc. (ASTM A161T-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)
- The weld metal contain about 0.5% Mo so it has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has very efficient welding due to higher deosition rate particularly.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Mo
CO_2	0.02	0.55	1.21	0.008	0.010	0.53

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 470	550~690	min. 19	
EN ISO 17634–B	min. 460	550~740	min. 17	
Example (CO_2)	531	610	25	620℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 100~200°C and PWHT at 620°C.

Package

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

K-81TB2

For heat-resisting steel (1.25%Cr-0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 1) P C1 1	AWS A5.29-2010	E81T1-B2C
EN ISO 17634-B:2015	T55T1-1C1-1CM	AWS A5.36-2016	E81T1-C1PZ-B2
JIS Z 3318-2010	T55T1-1C-1CM	KS D 7121-2015	YF1CM-C

Description

- It is designed for welding of 560MPa 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)
- The weld metal contain about 1.25%Cr, 0.5%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.05	0.44	1.08	0.008	0.009	1.25	0.53

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 470	550~690	min. 19	
EN ISO 17634–B	min. 460	550~740	min. 17	
Example (CO_2)	531	600	25	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- Preheat at 150~300°C and PWHT at 690°C.

Package

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

K-81TB2S

For heat-resisting steel (1.25%Cr-0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 1) P C1 1	AWS A5.29-2010	E81T1-B2C
EN ISO 17634-B:2015	T55T1-1C1-1CM	AWS A5.36-2016	E81T1-C1P0-B2
JIS Z 3318-2010	T55T1-1C-1CM	KS D 7121-2015	YF1CM-G

Description

- It is designed for welding of 560MPa 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)
- The weld metal contain about 1.25%Cr, 0.5%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength and good impact value at low temperature(0°C).

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.05	0.22	0.89	0.014	0.013	1.18	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		
EN ISO 17634-B	min. 460	550~740	min. 17		
Example (CO_2)	568	643	24	88	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-81TB2SM

For heat-resisting steel (1.25%Cr-0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 1) P M21 1	AWS A5.29-2010	E81T1-B2M
EN ISO 17634-B:2015	T55T1-1M21-1CM	AWS A5.36-2016	E81T1-M21P0-B2
JIS Z 3318-2010	T55T1-1M-1CM	KS D 7121-2015	YF1CM-G

Description

- It is designed for welding of 560MPa 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)
- The weld metal contain about 1.25%Cr, 0.5%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength and good impact value at low temperatures.(-20°C)

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
Mix	0.06	0.24	1.03	0.010	0.007	1.42	0.52

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	Remarks
AWS A5.29	min. 470	550~690	min. 19			
EN ISO 17634-B	min. 460	550~740	min. 17			
Example (Mix)	556	628	27	109	36	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-81TB2L

For heat-resisting steel (1.25%Cr-0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 1L) P C1 1	AWS A5.29-2010	E81T1-B2CL
EN ISO 17634-B:2015	T55T1-1C1-1CML	AWS A5.36-2016	E81T1-C1PZ-B2L
JIS Z 3318-2010	T55T1-1C-1CML	KS D 7121-2015	YF1CM-C

Description

- It is designed for welding of 560MPa 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)
- The weld metal contain about 1.25%Cr, 0.5%Mo, low carbon and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.03	0.43	1.11	0.008	0.010	1.28	0.56

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 470	550~690	min. 19	
EN ISO 17634–B	min. 460	550~740	min. 17	
Example (CO_2)	531	600	25	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-81TB6

For heat-resisting steel (5%Cr-0.5% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 5) P M21 1	AWS A5.29-2010	E81T1-B6M
EN ISO 17634-B:2015	T55T1-1M21-5CM	AWS A5.36-2016	E81T1-M21PZ-B6
JIS Z 3318-2010	T55T1-1M-5CM		

Description

- It is designed for welding of 560MPa 5%Cr-0.5% Mo steels used for high pressure vessels, oil refining industries, steam pipes of boilers etc. (ASTM A213-T5, A335-P5)
- The weld metal contain about 5%Cr, 0.5%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
Mix	0.06	0.58	0.42	0.008	0.009	4.52	0.48

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) R.T. (about 24℃)	Remarks
AWS A5.29	min. 470	550~690	min. 19		
EN ISO 17634-B	min. 460	550~740	min. 17		
Example (Mix)	550	660	20	70	745℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage
- Preheat at 150~250°C and PWHT at 745°C.

Package

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

K-91TB3

For heat-resisting steel (2.25%Cr-1% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 2) P C1 1	AWS A5.29-2010	E91T1-B3C
EN ISO 17634-B:2015	T62T1-1C1-2C1M	AWS A5.36-2016	E91T1-C1PZ-B3
JIS Z 3318-2010	T62T1-1C-2C1M	KS D 7121-2015	YF2CM-C

Description

- It is designed for welding of 620MPa 2.25%Cr-1% 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)
- The weld metal contain about 2.25%Cr, 1%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.05	0.51	1.18	0.008	0.011	2.25	1.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 540	620~760	min. 17	
EN ISO 17634–B	min. 530	620~820	min. 15	
Example (CO_2)	630	680	24	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-91TB3SM

For heat-resisting steel (2.25%Cr-1% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 2) P M21 1	AWS A5.29-2010	E91T1-B3M
EN ISO 17634-B:2015	T62T1-1M21-2C1M	AWS A5.36-2016	E91T1-M21P0-B3
JIS Z 3318-2010	T62T1-1M-2C1M	KS D 7121-2015	YF2CM-G

Description

- It is designed for welding of 620MPa 2.25%Cr-1% 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)
- The weld metal contain about 2.25%Cr, 1%Mo and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength and good impact value at low temperatures.(-20°C)

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
Mix	0.06	0.33	1.06	0.015	0.013	2.19	1.04

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	PWHT
AWS A5.29	min. 540	620~760	min. 17			
EN ISO 17634-B	min. 530	620~820	min. 15			
Example (Mix)	658	726	21	139	120	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-91TB3L

For heat-resisting steel (2.25%Cr-1% Mo)

Classifications

EN ISO 17634-A:2015	T (CrMo 2L) P C1 1	AWS A5.29-2010	E91T1-B3LC
EN ISO 17634-B:2015	T62T1-1C1-2C1ML	AWS A5.36-2016	E91T1-C1PZ-B3L
JIS Z 3318-2010	T62T1-1C-2C1ML	KS D 7121-2015	YF2CM-C

Description

- It is designed for welding of 620MPa 2.25%Cr-1% 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)
- The weld metal contain about 2.25%Cr, 1%Mo, low carbon and has good crack and heat resistance.
- Wire is a titania type of flux cored wire for all-position welding.
- It has excellent creep rupture strength, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.03	0.51	1.18	0.007	0.011	2.25	1.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 540	620~760	min. 17	
EN ISO 17634–B	min. 530	620~820	min. 15	
Example (CO_2)	630	680	25	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-91TB3LS

For heat-resisting steel (2.25%Cr-1% Mo)

Classifications

AWS A5.29-2010 E91T1-G
AWS A5.36-2016 E91T1-C1PZ-G

Description

- It is designed for welding of 620MPa 2.25%Cr-1% 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)
- The weld metal contain about 2.25%Cr, 1%Mo, low carbon and has good crack and heat resistance.
- It has excellent low temperature toughness at -20°C.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.06	0.33	1.06	0.015	0.013	2.19	1.04

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -20℃	PWHT
AWS A5.29	min. 540	620~760	min. 17			
EN ISO 17634-B	min. 530	620~820	min. 15			
Example (CO_2)	658	726	21	139	120	690℃x1Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 160~190°C and PWHT at 690°C.

Package

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

K-91TB9

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

Classifications

EN ISO 17634-B:2015	T69T1-1M21-9C1MV	AWS A5.29-2010	E91T1-B9M
JIS Z 3318-2010	T69T1-1M-9C1MV	AWS A5.36-2016	E91T1-M21PZ-B9

Description

- It is designed for welding of 620MPa 9%Cr-1% Mo-V steels used for high pressure vessels, oil refining industries etc. (ASTM A189 Gr. F91, A199 Gr.T91, A200 Gr.T91, A213 Gr.T91 A335 Gr. P91, A369 Gr. FP91, A387 Gr. 91)
- The weld metal contain about 9%Cr-1%Mo-Ni-V component, so excellent creep rupture strength.
- It has easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Mo	V
Mix	0.10	0.23	0.72	9.10	1.00	0.18

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 540	620~830	min. 16	
Example (Mix)	630	750	24	760℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 210~310°C and PWHT at 760°C.

Package

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

K-101TB9

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

Classifications

EN ISO 17634-B:2015	T69T1-1M21-9C1MV	AWS A5.29-2010	E91T1-B9M
JIS Z 3318-2010	T69T1-1M-9C1MV	AWS A5.36-2016	E101T1-M21PZ-B9

Description

- It is designed for welding of 700MPa 9%Cr-1% Mo-V steels used for high pressure boilers, chemical and oil refinery plants. (ASTM A189 Gr. F91, A199 Gr. T91, A200 Gr. T91, A213 Gr. T91, A335 Gr. P91, A369 Gr. FP91, A387 Gr. 91)
- K-101TB9 is proposed as AWS E101T1-B9M due to no current national standards.
- It has easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Mo	V
Mix	0.12	0.26	0.72	9.60	1.00	0.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.29	min. 540	620~830	min. 16	
EN ISO 17634–B	min. 565	690~890	min. 14	
Example (Mix)	720	810	18	760℃x2Hr

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- Preheat at 210~310°C and PWHT at 760°C.

Package

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

K-71TW

For atmospheric corrosion resisting steel

Classifications

EN ISO 17632-B:2015	T49 3T1-1C1A-NCC1	AWS A5.29-2010	E81T1-W2C
JIS Z 3320-2012	T49 3T1-1CA-NCC1	AWS A5.36-2016	E71T1-C1A2-W2
		KS D 7109-2005	YFA-50W

Description

- It is designed for welding of 490MPa weather-proof steels.
- The weld metal contain Cr, Ni, Cu alloys and has good weather-proof properties.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 390	490~670	min. 18		≥ 27	
Example	510	592	21	52	40	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-81TW

For atmospheric corrosion resisting steel

Classifications

EN ISO 17632-B:2015	T55 3T1-1C1A-NCC1	AWS A5.29-2010	E81T1-W2C
JIS Z 3320-2012	T55 3T1-1CA-NCC1	AWS A5.36-2016	E81T1-C1A2-W2
		KS D 7109-2005	YFA-58W

Description

- It is designed for welding of 560MPa weather-proof steels.
- It has better CVN toughness at low temperatures when compared to the K-71TW.
- Wire is a titania type of flux cored wire for all-position welding.
- It feature excellent mechanical properties, easy slag removal, low spatter generation, high X-ray safety.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -30℃	Remarks
AWS A5.29	min. 470	550~690	min. 19		≥ 27	
EN ISO 17632-B	min. 460	550~740	min. 17		≥ 27	
Example	550	630	28	75	60	CO_2

Notes on usage and welding condition

- Refer to page 229~231 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-250HT

For hardfacing (Hv200~300)

Classifications

EN ISO 14700:2005 T Fe1 JIS Z 3326 YF2A-C-250

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- In order to minimize cracking, should obey the preheat and interpass temperature.
- It has low spatter generation, easy slag removal and reduced grinding time after work hardening.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr
CO_2	0.07	0.50	1.59	0.013	0.011	1.30

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	200~300	11~29	29~42	150	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-300HT

For hardfacing (Hv250~350)

Classifications

EN ISO 14700:2005 T Fe1 JIS Z 3326 YF2A-C-300

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- In order to minimize cracking, should obey the preheat and interpass temperature.
- It has low spatter generation, easy slag removal and reduced grinding time after work hardening.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr
CO_2	0.09	0.68	1.54	0.014	0.013	1.10

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	250~350	22~35	36~47	150	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

Flux Cored Welding Wire

K-350HT

For hardfacing (Hv300~400)

Classifications

EN ISO 14700:2005 T Fe1 JIS Z 3326 YF2A-C-350

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include transfer rollers and idlers, crane wheels.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.12	0.45	1.37	0.015	0.011	1.30	0.20

Typical mechanical properties of all-weld metal

	Typical value			Interpass Temp(℃)	Remarks
	Hv	HRC	Hs		
Example (CO_2)	300~400	29~40	42~55	150	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-450HT

For hardfacing (Hv400~500)

Classifications

EN ISO 14700:2005 T Fe1 JIS Z 3326 YF2A-C-450

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include transfer rollers and idlers, crane wheels.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.24	0.50	1.20	0.015	0.010	2.20	0.40

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	400~500	40~49	55~66	200	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-500HT

For hardfacing (Hv450~600)

Classifications

JIS Z 3326 YF3B-C-500

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include transfer rollers and idlers, crane wheels.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.19	2.06	0.35	0.014	0.012	5.26	0.59

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	450~600	45~55	59~74	200	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-600HT

For hardfacing (Hv550~700)

Classifications

JIS Z 3326 YF3B-C-600

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include crane wheels, blower blades, bucket lips, dredge parts etc.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Mo
CO_2	0.34	2.80	0.50	0.013	0.009	6.50	0.50

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	550~700	52~60	69~81	200	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-700HT

For hardfacing (Hv600~800)

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include crane wheels, blower blades, bucket lips, dredge parts etc.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	W
CO_2	0.40	3.20	0.60	0.012	0.010	7.00	0.80

Typical mechanical properties of all-weld metal

	Typical value			Interpass Temp(℃)	Remarks
	Hv	HRC	Hs		
Example (CO_2)	600~800	55~64	74~88	200	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-800HT

For hardfacing (Hv700~850)

Description

- It is designed for heavy abrasion resistance with martensitic structure.
- Typical applications include augers, bucket lips, conveyor screws, blower blades, dozer blades.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	W
CO_2	0.44	3.40	0.55	0.013	0.011	7.50	1.00

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (CO_2)	700~850	60~65	81~91	200	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-CXA-40HT

For hardfacing (Hv350~450)

Classifications

EN ISO 14700:2005 T Fe7 JIS Z 3326 YF4A-G-350

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include tractor rollers, trunnions, crane wheels, track rails.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ni
Mix	0.05	0.25	0.30	0.014	0.009	12.00	4.20

Typical mechanical properties of all-weld metal

	Typical value			Interpass Temp(℃)	Remarks
	Hv	HRC	Hs		
Example (Mix)	350~450	35~45	47~59	150	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-CXA-41HT

For hardfacing (Hv350~450)

Classifications

EN ISO 14700:2005	T Fe7	JIS Z 3326	YF4A-G-350

Description

- It is designed for welding of metal to metal and underlaying welding of hardfacing.
- Typical applications include tractor rollers, trunnions, crane wheels, track rails.
- In order to minimize cracking, should obey the preheat and interpass temperature.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ni	Mo
Mix	0.05	0.39	0.49	0.014	0.010	12.10	3.90	1.10

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (Mix)	350~450	35~45	47~59	150	As weld

* Composition and hardness depend upon dilution. Single layer deposit hardness depend upon base metal and/or build-up material.

Package

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

K-45CT

For S45C pipe welding

Description

- Hardness of weld-metal is determined by tempered temperature and time, as well as the dilution of base metal and hign frequency heat treatment.
- In order to minimize cracking, should obey the preheat and interpass temperature.
- It has low spatter generation, easy slag removal and reduced grinding time after work hardening.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ni	Mo
Mix	0.47	0.50	0.80	0.01	0.010	0.02	0.02	0.02

Typical mechanical properties of all-weld metal

	Typical value			Interpass	Remarks
	Hv	HRC	Hs	Temp(℃)	
Example (Mix)	450~540	46~51	62~68	200	Tempering at 580℃ after QT

Package

Dia. (mm)	1.2	1.6	3.2
Spool (kg)	5, 12.5, 15, 20		
Pailpack (kg)	100 ~ 300		
POP (kg)	100 ~ 300		

Repair and Hard-facing welding

Forging Mold, Cement, Continuous casting roller

Repair and Hard-facing welding for Hot-rolling forging Mold

Class	Product	Dia. (mm)	Hardness (HRC)	Forging mold		Chemical composition (%) C	Si	Mn	Cr	Ni	Mo
Hard Facing forging mold	**K-30RT**	1.6~3.2	11~29	Heat Hammer		0.01	0.45	13.19	15.26	2.23	1.54
	K-40RT	1.6~3.2	35~45	Hammer		0.07	0.57	1.81	2.66	3.33	1.43
	K-58RT	1.6~3.2	50~60	Press	Hard Facing	0.32	0.87	0.77	9.87	0.11	2.50
	K-63RT	1.6~3.2	45~55		Cladding	0.15	0.94	0.83	9.65	2.00	1.70
	K-65RT	1.6~3.2	50~60		Hard Facing	0.24	0.84	0.61	9.10	1.80	2.50

Repair and Hard-facing welding for Continuous casting roller

Class	Product	Dia. (mm)	Hardness (HRC)	Feature	Welding Process
Hard Facing forging mold	**K-CXA-40HT**	1.2~1.6	32~38	Metal cored wire	Repairing welding (manual)
	K-CXA-41HT	1.2~1.6	32~38	Metal cored wire	
	K-13CrLT	2.0~3.2	32~38	Composite wire	SAW + FCW type (with EF-200F)
	K-13CrHT	2.0~3.2	35~42		
	K-13CrNiHT	2.0~3.2	38~44		
	K-15CrHT	2.0~3.2	20~25		
	K-430 O	2.0~3.2	20~25	Open-arc type	For the first layer
	K-414 N	2.0~3.2	40~45	Open-arc type	Hard facing for the 2st 3rd layers

Repair and Hard-facing welding for Cement

Class	Product	Dia. (mm)	Hardness (HRC)	Chemical composition (%) C	Si	Mn	Cr	Feature
Cement	**K-HCRHT**	2.0~3.2	55~62	5.2	1.0	2.5	28.5	High Cr - carbide type
	KX-CRHT	1.2~3.2	62~68	3.0	1.3	0.2	23.5	
	K-CCHT	2.0~3.2	52~58	4.5	0.5	0.9	26.5	
	K-MCHT	2.0~3.2	18~24	0.4	0.3	16.5	13.0	Austenitic Mn steel type

Notes on usage and welding condition

- Please contact to R&D center for specific information (Tel: 055-269-7285, Fax: 055-266-4487)

Package

Dia. (mm)	1.2	2.0	3.2
Spool (kg)	5, 12.5, 15, 20		
Pailpack (kg)	100 ~ 300		
POP (kg)	100 ~ 300		

Proper ranges of welding (DC+)

Dia.(mm)	1.6	2.0	2.4	3.2	Shielding gas	Welding position
Current (A)	180~450	240~500	300~600	400~700	75%Ar-25%CO_2	Flat
Voltage (V)	26~34	27~35	27~36	28~36		

Welding positions

Tip for better welding results for STS FCW

Usage and welding parameter

Fig 1. Deposition rate as a function of welding current

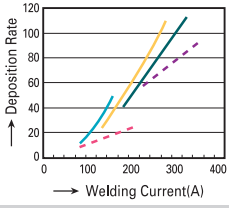
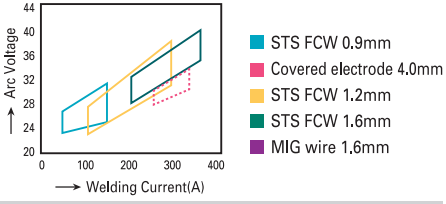


Fig 2. Proper ranges of welding current and arc voltage



Notes on usage

① **Welding power source :** Use a DC power source with constant voltage and the polarity DCEP inverter-type welding power sources can also be used. When the use of a certain pulsed arc power source causes much spatter, use the wire with ordinary currents, turning off the pulse switch.

② **Shielding gas :** Use CO_2 for shielding for general applicaton. Ar-CO_2 mixtures with 20~50% CO_2 can also be used, bur compared with CO_2, porosity (pit, Blowhole) is apt to occur. The proper flow rate of shielding gas is 20~25 litter/min.

③ **Wire extension :** Keep the wire extension at about 15mm for 0.9mm wire and 15~20mm for 1.2~1.6mm wire. The use of a shorter wire extension may cause pit and worm-tracking porosity. The wire extension in welding with an Ar-CO_2 mixture should be 5mm longer than in use of CO_2.

④ **Protection against wind :** When wind velocity at the vicinity of an arc is more than 1m/sec, blowhole is apt to occur, and dissolution of nitrogen into the weld metal may deteriorate slag removal and decrease the ferrite content of the weld metal, thereby causing hot cracking. To prevent these problems, use an adequate shielding gas flow rate and a windscreen.

⑤ **Welding fumes :** Flux-cored wires generate much more welding fumes in terms of the amount of fumes at unit time in comparison with that of solid wire. To protect welders from garmful welding fumes, be sure to use a local ventilator and an appropriate respirator.

⑥ **Storage of wire :** If a STS FCW was left in a wire feeder in a high temperature high humidity atmosphere in summer season, a wet environment in rainy season or a dewfall environment at night in winter season, the use of it may cause pit and worm-tracking porosity due to moisture pick up. Once a wire was unpacked, the wire should be kept in an area of low humidity, taking appropriate preventive measures against dewfall water and dust.

Proper ranges of welding (DC+, for 100% CO_2)

Dia.(mm)		0.9	1.2	1.6
Current (Amp.)	F (PA/1G)	80 ~ 160 (18 ~ 24)	140 ~ 240 (24 ~ 31)	180 ~ 300 (26 ~ 30)
	HF (PC/2G)	100 ~ 160 (18 ~ 24)	160 ~ 240 (25 ~ 31)	200 ~ 300 (27 ~ 30)
	VU (PF/3G)	100 ~ 120 (20 ~ 23)	160 ~ 200 (25 ~ 28)	200 ~ 240 (27 ~ 30)

☞ Mixture gas (Ar+CO_2=8:2) make to spray transfer, so you should be lower 1~2 voltage.
The use of an excessively low arc voltage may generate a large sound in spray arc welding with mixture gas, it make shallowed welding depth. And it may cause welding defect for low shielding power.

☞ When you use shorter wire extension in mixture gas, you should get an advantage of bead shape and welding depth.

☞ Because high heat input of over welding condition make limited heating, base metal easily deform. So, please keep the appropriate welding condition.

K-308T

Austenitic Stainless welding wire (18%Cr-8%Ni)

Classifications

EN ISO 17633-B:2010	TS 308-F C1/M21 1	KS D 3612-2016	YF-308C
AWS A5.22-2012	E308T1-1/4	JIS Z 3323-2007	TS308-FB1

Description

- K-308T is designed for MAG welding of 18%Cr-8%Ni stainless steels and also formulated for all-position welding.
- It is a titania type of flux cored wire for AISI 304 and 304H steel type and has low spatter generation, easy slag removal and good weld soundness.
- The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.04	0.60	1.15	20.40	10.60	9
Mix	0.04	0.65	1.25	20.60	10.60	10

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 550	min. 35		
EN ISO 17633-B		min. 550	min. 30		
Example	450	580	39	60	CO_2
	460	590	38	65	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-308LT

Austenitic Stainless welding wire (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 17633-A:2010	T 19 9 L P C1/M21 1	KS D 3612-2016	YF-308LC
EN ISO 17633-B:2010	TS 308L-F C1/M21 1	JIS Z 3323-2007	TS308L-FB1
AWS A5.22-2012	E308LT1-1/4		

Description

- K-308LT is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steel and used to joint austenitic stainless steel. (AISI 304, 304L, 304LN, ASTM A157 Gr. C9; A320 Gr. B8C or D)
- The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.
- It has easy slag removal, low spatter generation and good weld soundness of weld-metal.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix :Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.65	1.00	20.30	10.5	3~8 & 8~12
Mix	0.03	0.72	1.12	20.40	10.5	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	440	570	39	65	CO_2
	450	580	38	63	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, BV, DNV, KR, LR, NK, CCS, JIS, TUV, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-308LB

Austenitic Stainless welding wire (Low C, Bi Free)

Classifications

EN ISO 17633-A:2010	T 19 9 L P C1/M21 1	KS D 3612-2016	YF-308LC
EN ISO 17633-B:2010	TS 308L-F C1/M21 1	JIS Z 3323-2007	TS308L-BiF-FB1
AWS A5.22-2012	E308LT1-1/4		

Description

- K-308LB is designed for MAG welding of high carbon 18%Cr-8%Ni stainless steels with high temperature heat treatment such as solution treatment.
- It is a titania type of flux cored wire without Bi component for all-position welding.
- It has excellent feedability and increased creep resistance at elevated temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.48	1.15	19.30	9.95	7.5
Mix	0.03	0.60	1.25	19.50	10.00	8.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	420	560	38	56	CO_2
	430	580	38	52	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage
- It should weld with proper welding conditions for slag detachment and weldability.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

K-308LS

Austenitic Stainless welding wire (Low C, -196°C LNG)

Classifications

EN ISO 17633-A:2010	T 19 9 L P C1 1	KS D 3612-2016	YF-308LC
EN ISO 17633-B:2010	TS 308L-F C1 1	JIS Z 3323-2007	TS308L-FC1
AWS A5.22-2012	E308LT1-1		

Description

- K-308LS is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steels and recommended to be used for low temperature service. (STS 304, 304L, 304LN, ASTM A157 Gr C9; A320 Gr. B8C or D)
- It is a titania type of flux cored wire for all-position welding and formulated to focus on mechanical properties more than welding arc stability and provides good corrosion resistance, heat resistance properties.
- The weld metal contains low ferrite contents in their austenitic micro structures and provides good corrosion resistance, heat resistance properties.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.63	1.39	18.55	10.02	3 ~ 8

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -196℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	400	550	43	40	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

BV, DNV, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-308LF

Austenitic Stainless welding wire (Low C, 18%Cr-8%Ni)

Classifications

EN ISO 17633-A:2010	T 19 9 L R C1/M21 3	KS D 3612-2016	YF-308LC
EN ISO 17633-B:2010	TS 308L-F C1/M21 0	JIS Z 3323-2007	TS308L-FB0
AWS A5.22-2012	E308LT0-1/4		

Description

- K-308LF is designed for MAG welding of low carbon 18%Cr-8%Ni stainless steel and used to joint 301, 302, 304 and 308 stainless steel.
- It is formulated for operation primarily in the flat position and for welding horizontal fillet welds.
- It has self-detaching slag and spray-like arc transfer and It provides low spatter and fume, high efficient weld in flat position as well as horizontal.
- The weld metal contains optimum ferrite contents in their austinitic structures, therefore their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.52	1.42	20.12	9.60	3~8 & 8~12
Mix	0.03	0.65	1.53	20.50	9.70	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	450	560	40	60	CO_2
	450	600	36	56	Mix

Notes on usage and welding condition

- efer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, DNV, RS, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-308HT

Austenitic Stainless welding wire (High C, 18%Cr-8%Ni)

Classifications

EN ISO 17633-B:2010	TS 308H-F C1/M21 1	JIS Z 3323-2007	TS308H-FB1
AWS A5.22-2012	E308HT1-1/4		

Description

- K-308HT is designed for MAG welding of high carbon 18%Cr-8%Ni stainless steels(STS 304H, 307H) and recommended to be use for high temperature service. (about 600°C)
- It is a titania type of flux cored wire for all-position welding and has excellent feedability and increased creep resistance at elevated temperature.
- The weld metal contains optimum ferrite contents in their austenitic micro structures and their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.06	0.65	1.00	19.50	10.50	7.5
Mix	0.06	0.75	1.10	19.80	10.50	8.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	430	600	39	45	CO_2
	440	610	40	55	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-308HB

Austenitic Stainless welding wire (Bi Free 18%Cr-8%Ni)

Classifications

EN ISO 17633-A:2010	T 19 9 P C1/M21 1	JIS Z 3323-2007	TS308H-BiF-FB1
EN ISO 17633-B:2010	TS 308H-F C1/M21 1		
AWS A5.22-2012	E308HT1-1/4		

Description

- K-308HB is designed for MAG welding of high carbon 18%Cr-8%Ni stainless steels(STS 304H, 307H) and recommended to be use for high temperature service. (about 600°C)
- It is a titania type of flux cored wire without Bi component for all-position welding and has excellent feedability and increased creep resistance at elevated temperature.
- The weld metal contains optimum ferrite contents in their austenitic micro structures and their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.06	0.48	1.62	19.65	9.80	7.8
Mix	0.06	0.55	1.70	19.80	9.80	8.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 35		
EN ISO 17633-B		min. 520	min. 30		
Example	400	600	38	60	CO_2
	410	610	38	65	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage
- It should weld with proper welding conditions for slag detachment and weldability.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

K-NGS308L

Austenitic Stainless welding wire (Self-shielded FCW)

Classifications

AWS A5.22-2012 E308LT0-3

Description

- K-NGS308L is designed for self-shielded welding of low carbon 18%Cr-8%Ni stainless steel and used to join STS 304, 304L, 308, 201, 202, 203 etc.
- It is a lime-titania type of flux cored wire for flat and hofizotal welding position without shielding gas.
- It features easy slag removal, open transfer, low spatter generation, smooth bead surface and high Xray safety.
- The weld metal contains low ferrite contents in their austenitic micro structures and provides good corrosion resistance, heat resistance properties.
- 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.

Welding positions

Polarity & shielding gas

- DC+, Self-shield

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
None	0.02	0.45	1.12	20.50	9.70	10.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	Remarks
AWS A5.22		min. 520	min. 35		
Example	440	620	39	85	

Notes on usage and welding condition

Dia. (mm)		0.8	0.9	1.2
Current (Amp.)	F (PA/1G)	40 ~ 120	60 ~ 140	100 ~ 180
	HF (PC/2G)	50 ~ 120	60 ~ 140	100 ~ 180

- It is more convenient to weld with portable welding machine.

Package

Dia. (mm)	0.8	0.9	1.2
Spool (kg)	1, 5		12.5, 15, 20

K-309T

Austenitic Stainless welding wire (Dissimilar joints)

Classifications

EN ISO 17633-B:2010	TS 309-F C1/M21 1	KS D 3612-2016	YF-309C
AWS A5.22-2012	E309T1-1/4	JIS Z 3323-2007	TS309-FB1

Description

- K-309T is formulated for MAG welding of 22%Cr-12%Ni stainless steels and typical applications is for welding of dissimilar steels, such as 304 to mild steel or low alloy steels.
- K-309T is a titania type of flux cored wire for cladding and dissimilar joint welds.
- Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
- It is designed for all-position welding.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.05	0.58	1.45	23.50	13.00	14
Mix	0.05	0.70	1.63	23.70	13.20	15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.22		min. 550	min. 30		
EN ISO 17633-B		min. 550	min. 25		
Example	450	590	35	40	CO_2
	460	610	34	44	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309LT

Austenitic Stainless welding wire (Low C, dissimilar joints)

Classifications

EN ISO 17633-A:2010	T 23 12 L P C1/M21 1	KS D 3612-2016	YF-309LC
EN ISO 17633-B:2010	TS 309L-F C1/M21 1	JIS Z 3323-2007	TS309L-FB1
AWS A5.22-2012	E309LT1-1/4		

Description

- Dissimilar joint welds ; of and between high-strength, mild steels and low allowed 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.
- Weld metal contains comparatively much more ferrite in their austenitic structure, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.
- It is easy to use and operate with a powerful penentrating spray arc transfer, minumum spatter formation and self releasing slag.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.60	1.12	23.70	13.20	5~12 & 11~16
Mix	0.03	0.75	1.20	23.90	13.20	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.22		min. 520	min. 30		
EN ISO 17633-B	min. 320	min. 520	min. 25		
Example	430	560	37	45	CO_2
	440	570	37	48	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, BV, DNV, KR, LR, NK, RINA, RS, CCS, JIS, TUV, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309LF

Austenitic Stainless welding wire (Low C, Dissimilar joints)

Classifications

EN ISO 17633-A:2010	T 23 12 L R C1/M21 3	KS D 3612-2016	YF-309LC
EN ISO 17633-B:2010	TS 309L-F C1/M21 0	JIS Z 3323-2007	TS309L-FB0
AWS A5.22-2012	E309LT0-1/4		

Description

- Dissimilar joint welds ; of and between high-strength, mild steels and low allowed 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.
- Wire is a titania type of flux cored wire for flat and horizontal position welding and it provides better weldability together with excellent corrosion resistance.
- Wire has low spatter, easy slag removal and good weld soundness.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.03	0.6	1.42	23.30	13.17	5~12 & 11~16
Mix	0.03	0.75	1.45	23.50	13.30	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.22		min. 520	min. 30		
EN ISO 17633-B	min. 320	min. 520	min. 25		
Example	420	560	37	43	CO_2
	430	570	38	50	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

DNV, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309HT

Austenitic Stainless welding wire (High C, dissimilar joints)

Classifications

AWS A5.22-2012 E309HT1-1

Description

- K-309HT is designed for MAG welding of high carbon 22%Cr-12%Ni stainless steels(STS 309) and recommended to be use for high temperature service. (about 600℃)
- It is a titania type of flux cored wire for all-position welding and has excellent feedability and increased creep resistance at elevated temperature.
- The weld metal contains optimum ferrite contents in their austenitic micro structures and their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.06	0.74	1.43	23.45	12.39	14

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.22		min. 550	min. 30		
Example	446	583	38	37	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309LMT

Austenitic Stainless welding wire (Muffler, Dissimilar joints)

Classifications

EN ISO 17633-B:2010	TS 309L-M M13 0	KS D 3612-2016	YF-309LG
AWS A5.22-2017	EC309L	JIS Z 3323-2007	TS309L-MA0

Description

- K-309LMT is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels and It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange. (AISI 409, 436 and dissimilar joint welds)
- Slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- K-309LMT provides low spatter, excellent bead appearance and porosity resistance.
- Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
Mix	0.03	0.50	1.65	23.90	12.60	18

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.9		min. 520	min. 30		
EN ISO 17633-B		min. 520	min. 25		
Example	440	560	40	50	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.6
Spool (kg)	5, 12.5, 15	
Pailpack (kg)	100	

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309LMTS

Austenitic Stainless welding wire (Muffler, Dissimilar joints)

Classifications

EN ISO 17633-B:2010	TS 309L-M M13 0	KS D 3612-2016	YF-309LG
AWS A5.22-2012	EC309L	JIS Z 3323-2007	TS309L-MA0

Description

- K-309LMTS is designed for MAG welding of low carbon 22%Cr-12%Ni stainless steels and It is suitable for automotive exhaust fabricators such as front pipe, bellows, flange. (AISI 409, 436 and dissimilar joint welds)
- Slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- K-309LMTS provides low spatter, excellent bead appearance and porosity resistance.
- Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Ti
Mix	0.03	0.47	1.60	23.40	13.40	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
JIS Z 3323		min. 520	min. 25		
Example	450	570	42	60	Mix

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.6
Spool (kg)	5, 12.5, 15	
Pailpack (kg)	100	

Approvals

JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309MoLT

Austenitic Stainless welding wire (Dissimilar joints)

Classifications

EN ISO 17633-A:2010	T 23 12 2 L P C1 1	KS D 3612-2016	YF-309MoLC
EN ISO 17633-B:2010	TS309LMo-F C1 1	JIS Z 3323-2007	TS309LMo-FC1
AWS A5.22-2012	E309LMoT1-1		

Description

- 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.
- Wire is a titania type of flux cored wire for all-position welding and for Mo-alloyed claddings the product is necessary for the 1st layer.
- Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.60	1.00	23.75	14.60	2.50	18.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.22		min. 520	min. 25		
EN ISO 17633-B	min. 350	min. 550	min. 25		
Example	480	700	30	35	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

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

Approvals

ABS, KR, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-309MoLF

Austenitic Stainless welding wire (Dissimilar joints)

Classifications

EN ISO 17633-A:2010	T 23 12 2 L R C1/M21 3	KS D 3612-2016	YF-309MoLC
EN ISO 17633-B:2010	TS 309LMo-F C1/M21 0	JIS Z 3323-2007	TS309LMo-FB0
AWS A5.22-2012	E309LMoT0-1/4		

Description

- 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.
- Wire is a titania type of flux cored wire for flat and horizontal welding and for Mo-alloyed claddings the product is necessary for the 1st layer.
- Weld metals contain comparatively much more ferrite in their austenitic, therefore they provide better weldability together with superior heat resistance, and corrosion resistance.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2,
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.65	1.32	23.45	13.01	2.50	5~12 & 19~26
Mix	0.03	0.67	1.35	23.45	13.01	2.50	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.22		min. 520	min. 25		
EN ISO 17633-B	min. 350	min. 550	min. 25		
Example	635	740	30	30	CO_2
	625	737	32	31	Mix

Notes on usage and welding condition

- Refer to 322 page for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

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

K-312T

Austenitic Stainless welding wire (dissimilar joints, Buffer layer)

Classifications

EN ISO 17633-A:2010	T 29 9 P C1 1	JIS Z 3323-2007	TS312-FC1
EN ISO 17633-B:2010	TS 312-F C1 1		
AWS A5.22-2012	E312T1-1		

Description

- K-312T is formulated for MAG welding of 30%Cr-9%Ni stainless steels and 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)
- Wire is a titania type of flux cored wire for all-position welding and It also provides excellent usability with stable arc, less spatter levels, better bead appearance as the same as that of a solid MIG wire.
- It has resistance to stress corrosionand highly insensitive to dilution and good scaling resistance up to 1150℃.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	FN
CO_2	0.06	0.55	1.25	30.30	10.06	60 ~ 80

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.22		min. 660	min. 22	
EN ISO 17633-B	min. 450	min. 660	min. 15	
Example	600	760	25	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)		5, 12.5, 15	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-316LT

Austenitic Stainless welding wire (Low C, 18%Cr-8%Ni-Mo)

Classifications

EN ISO 17633-A:2010	T 19 12 3 L P C1/M21 1	KS D 3612-2016	YF-316LC
EN ISO 17633-B:2010	TS 316L-F C1/M21 1	JIS Z 3323-2007	TS316L-FB1
AWS A5.22-2012	E316LT1-1/4		

Description

- K-316LT is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steels and this wire has low carbon content which gives good resistance to most types of corrosion of the weld metal. (AISI 316L, 316Ti)
- Wire is a titania type of flux cored wire for all-position welding and the weld metal contains optimum ferrite contents in their austenitic structures, therefore their weldability is excellent with lower crack susceptibility.
- Wire has self-detaching slag, spray-like arc transfer, excellent weldability and increased creep resistance at elevated temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.60	1.15	19.50	12.70	2.4	3~8 & 8~12
Mix	0.03	0.65	1.20	19.70	12.70	2.4	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -105℃	Remarks
AWS A5.22		min. 485	min. 30			
EN ISO 17633-B	min. 320	min. 510	min. 25			
Example	420	560	38	50	38	CO_2
	430	570	38	52	40	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, BV, DNV, KR, LR, NK, RINA, RS, CCS, JIS,TUV, CWB

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-316LF

Austenitic Stainless welding wire (Low C, 18%Cr-8%Ni-Mo)

Classifications

EN ISO 17633-A:2010	T 19 12 3 L R C1/M21 3	KS D 3612-2016	YF-316LC
EN ISO 17633-B:2010	TS 316L-F C1/M21 0	JIS Z 3323-2007	TS316L-FB0
AWS A5.22-2012	E316LT0-1/4		

Description

- K-316LF is designed for MAG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steel and this wire has low carbon content which gives good resistance to most types of corrosion of the weld metal. (AISI 316L, 316Ti, 316Cb)
- Wire is a titania type of flux cored wire for flat and horizontal position welding.
- K-316LF has self-detaching slag and spray-like arc transfer, as well as excellent weldability and increased creep resistance at elevated temperature.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.58	1.38	19.50	12.50	2.4	3~8 & 8~12
Mix	0.03	0.63	1.45	19.70	12.60	2.4	

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -105℃	Remarks
AWS A5.22		min. 485	min. 30			
EN ISO 17633-B	min. 320	min. 510	min. 25			
Example	440	570	37	52	40	CO_2
	440	590	36	55	42	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

DNV, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-316LS

Austenitic Stainless welding wire (Low C, -196°C LNG)

Classifications

EN ISO 17633-B:2010	TS 316L-F C1 1	KS D 3612-2016	YF-316LC
AWS A5.22-2012	E316LT1-1	JIS Z 3323-2007	TS316L-FC1

Description

- K-316LS is designed for MAG welding of low carbon 18%Cr-8%Ni-2%Mo stainless steels and recommended to be use for low temperature service. (AISI 316L, 316Ti, 316Cb)
- It is a titania type of flux cored wire for all-position welding and formulated to focus on mechanical properties more than welding arc stability.
- The weld metal contains low ferrite contents in their austenitic micro structures and provides good corrosion resistance, heat resistance properties.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.87	1.28	17.90	13.09	2.4	4~8

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -196℃	Remarks
AWS A5.22		min. 485	min. 25		
EN ISO 17633-B	min. 320	min. 510	min. 30		
Example	420	537	35	39	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, BV, DNV, KR, LR, JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-317LT

Austenitic Stainless welding wire (Low C, 19%Cr-13%Ni-Mo)

Classifications

EN ISO 17633-B:2010	TS 317L-F C1 1	KS D 3612-2016	YF-317LC
AWS A5.22-2012	E317LT1-1	JIS Z 3323-2007	TS317L-FC1

Description

- K-317LT is designed for MAG welding of low carbon 19%Cr-13%Ni-3%Mo stainless steels and the principal area of application is process and chemical plant, shipbuilding as well as nuclear plant industries. (AISI 316L, 316LN, 317L, 317LN, UNS S31726)
- Wire is a titania type of flux cored wire for all-position welding and it has self-detaching slag, spray-like arc transfer, excellent weldability and increased creep resistance at elevated temperature.
- It contains higher levels of Mo for increased corrosion-resistance when compared to the K-316LT.
- The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	FN
CO_2	0.03	0.56	1.00	19.60	13.30	3.85	11.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.22		min. 520	min. 20			
EN ISO 17633-B		min. 520	min. 20			
Example	400	650	32	55	44	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, the impact value tends to be reduced. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-347T

Austenitic Stainless welding wire (18%Cr-8%Ni-Nb)

Classifications

EN ISO 17633-A:2010	T 19 9 Nb P C1 1	KS D 3612-2016	YF-347C
EN ISO 17633-B:2010	TS 347-F C1 1	JIS Z 3323-2007	TS347-FC1
AWS A5.22-2012	E347T1-1		

Description

- K-347T is formulated for MAG welding of 19%Cr-9%Ni-Nb stainless steels. (AISI 347, 321, ASTM A296; A157 Gr. C9; A320 Gr. B8C or D)
- Wire is a titania type of flux cored wire for all-position welding and it has low spatter generation, easy slag removal and good weld soundness.
- Nb component improves the resistance to intergranular corrosion of the weld metal.
- The weld metal contains optimum ferrite contents in their austenitic structures, Therefore their weldability is excellent with lower crack susceptibility.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Nb	FN
CO_2	0.04	0.68	1.15	19.70	10.10	0.56	7.0

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -105℃	Remarks
AWS A5.22		min. 520	min. 30			
EN ISO 17633-B	min. 350	min. 550	min. 25			
Example	480	650	33	50	40	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS, TUV

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-329T

Duplex Stainless welding wire (22%Cr-9%Ni-Mo)

Classifications

EN ISO 17633-A:2010	T 22 9 3 N L P C1/M21 1	JIS Z 3323-2007	TS2209-FB1
EN ISO 17633-B:2010	TS 2209-F C1/M21 1		
AWS A5.22-2012	E2209T1-1/4		

Description

- K-329T is formulated for MAG welding of 23%Cr-9%Ni-3%Mo duplex stainless steel and this 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)
- Wire is a titania type of flux cored wire for all-position welding and It has a stable welding arc producing a weld with easy slag removal and minimal spatter.
- K-329T is excellent in pitting corrosion resistance and stress corrosion cracking resistance.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	PREN	FN
CO_2	0.03	0.52	0.80	23.20	9.60	3.2	37	36.7
Mix	0.03	0.54	0.85	23.40	9.60	3.3	38	36.8

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.22		min. 690	min. 20			
EN ISO 17633-B	min. 350	min. 690	min. 15			
Example	715	818	27	52	42	CO_2
	720	825	26	50	40	Mix

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

ABS, DNV, LR, JIS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-325T

Super Duplex Stainless welding wire (25%Cr-9%Ni-Mo)

Classifications

EN ISO 17633-B:2010	TS 2553-F C1 0	JIS Z 3323-2007	TS329J4L-FC0
AWS A5.22-2012	E2553T0-G		

Description

- K-325T is formulated for MAG welding of 25%Cr-9%Ni-3%MoCu duplex stainless steels and the typical application is chemical plant and shipbuilding as well as nuclear plant industries. (UNS S32520, UNS S32550, S32750, S32900, JIS 329J4L)
- Wire is a titania type of flux cored wire for flat and horizontal position welding, and provides low spatter and fume generation and high efficiency in flat position.
- It has better pitting corrosion resistance and stress corrosion cracking resistance compared to the E2209TX-XXX welding consumables type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	PREN	FN
CO_2	0.03	0.50	0.80	25.60	9.00	3.6	40.5	55

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.22		min. 690	min. 20			
EN ISO 17633-B	min. 350	min. 690	min. 15			
Example	750	860	25	42	27	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-325TP

Super Duplex Stainless welding wire (25%Cr-9%Ni-Mo)

Classifications

AWS A5.22-2012 E2594T1-1

JIS Z 3323-2007 TS329J4L-FC1

Description

- K-325TP is formulated for MAG welding of 25%Cr-9%Ni-3%MoCu duplex stainless steels and the typical application is chemical plant and shipbuilding as well as nuclear plant industries. (UNS S32520, UNS S32550, S32750, S32900, JIS 329J4L)
- Wire is a titania type of flux cored wire for flat and horizontal position welding, and provides low spatter and fume generation and high efficiency in flat position.
- It has better pitting corrosion resistance and stress corrosion cracking resistance compared to the E2209TX-XXX welding consumables type.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo	PREN	FN
CO_2	0.03	0.48	0.94	25.52	9.25	3.62	40.5	55

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -40℃	Remarks
AWS A5.22		min. 760	min. 15			
Example	817	909	22	40	28	CO_2

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- When heat input is excessive, base metal will be bended or distorted due to the bad heat conductivity. Therefore, perform welding with selecting proper heat input.

Package

Dia. (mm)	0.9	1.2	1.6
Spool (kg)	5, 12.5, 15		

K-409TiT

Ferritic Stainless welding wire (Muffler, 13%Cr-Ti)

Classifications

EN ISO 17633-B:2010 TS 409-M M13 0 AWS A5.22-2012 E409T0-G

Description

- K-409TiT is developed to meet the needs of the automotive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode and additional applications include heat exchangers and recuperators, power plant reheater tubes etc.
- Wire is a metal type of flux cored wire for high speed welding on the plates as possible.
- It would produce a moderately soft arc and low spatter generation and also provide excellent bead appearance and porosity resistance.
- Slag quantity is almost the same as a solid wire and deposition rate is up to 20% higher than solid wire's one.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ti
Mix	0.02	0.50	0.45	0.011	0.005	12.10	0.80

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 17633-B		min. 450	min. 15	
Example	460	520	25	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-409TiC

Ferritic Stainless welding wire (Muffler, 13%Cr-Ti)

Classifications

EN ISO 17633-B:2010 TS 409-M M13 0 AWS A5.22-2012 E409T0-G

Description

- K-409TiT is developed to meet the needs of the automotive exhaust fabricators that desired a metal cored wire. It excels in the pulsed GMAW mode and additional applications include heat exchangers and recuperators, power plant reheater tubes etc.
- It would produce a moderately soft arc and high welding speed.
- K-409TiC provides low spatter, excellent bead appearance and porosity resistance.
- Higher Ti component improves resistance to porosity, good wetting behaviour when compared to the K-409TiT wire.
- High deposition efficiency and high speed welding on the thin plate are possible.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ti
Mix	0.02	0.44	0.62	0.011	0.005	11.50	1.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 17633-B		min. 450	min. 15	
Example	480	530	24	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-430T

Ferritic Stainless welding wire (Muffler, 17%Cr-Ti)

Classifications

AWS A5.22-2012 E430T0-G

Description

- K-430T is designed for MAG welding of ferrite stainless alloys of the 17%Cr-Ti types and suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc. (AISI 409, 430Ti, ASTM A176I)
- Wire is a metal type of flux cored wire for high speed welding on the plate as possible and It would produce a moderately soft arc and high low spatter generation.
- K-430T provide higher corrosion resistance, heat resistance due to high alloy designs and also suitable for surfacing of sealing faces of gas, water and steam valves.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ti
Mix	0.02	0.61	0.49	0.010	0.007	16.80	1.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.22		min. 450	min. 20	
Example	475	535	25	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

K-430LNb

Ferritic Stainless welding wire (Muffler, 18%Cr-Nb(Cb))

Classifications

EN ISO 17633-B:2010 TS 430Nb-M M13 0 JIS Z 3323-2007 TS430Nb-MA0

Description

- K-430LNb is designed for MAG welding of stainless steels of the 17%Cr-Nb steels and is suitable for automotive exhaust fabrications such as front pipe, bellows, flange etc. (AISI 430, 430Ti, 431)
- It is a metal type of flux cored wire for high speed welding on the plate as possible.
- It would produce a moderately soft arc, low spatter generation and slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- It has the high tensile strength at the high temperature atmosphere.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Nb(Cb)
Mix	0.02	0.26	0.27	0.009	0.005	17.80	0.56

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
JIS Z 3323		min. 450	min. 13	
Example	480	530	22	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-430LNbE

Ferritic Stainless welding wire (Muffler, 18%Cr-Nb(Cb))

Classifications

EN ISO 17633-B:2010 TS 430Nb-M I1 0 JIS Z 3323-2007 TS430Nb-MA0

Description

- K-430LNbE is designed for MAG welding of stainless steels of the 17%Cr-Nb steels and is suitable for automotive exhaust fabrications such as front pipe, bellows, flange etc. (AISI 430, 430Ti, 431)
- It is a metal type of flux cored wire for high speed welding on the plate as possible.
- It would produce a moderately soft arc, low spatter generation and slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- It has the high tensile strength at the high temperature atmosphere.
- It has a deeper penetration depth than K-430LNb.

Welding positions

Polarity & shielding gas

- Mix : 100% Ar (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Nb(Cb)
100% Ar	0.02	0.42	0.27	0.002	0.005	15.97	0.53

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
JIS Z 3323		min. 450	min. 13	
Example	400	512	25	100% Ar

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-436T

Ferritic Stainless welding wire (Muffler, 18%Cr-Mo)

Classifications

Not required

Description

- K-436T is designed for MAG welding of stainless steels of the 17%Cr-1%Mo-Ti types and suitable for automotive exhaust fabricators such as front pipe, bellows, flange, etc. (JIS 436L/436J1L)
- Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
- It would produce a moderately soft arc and high low spatter generation, and the Mo component in weld metal improves good crack resistance and heat resistance.
- It is also suitable for surfacing of sealing faces of gas, water and steam valves.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Mo	Ti
Mix	0.03	0.35	0.63	17.50	1.10	0.50

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
Example	385	490	23	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

K-439T

Ferritic Stainless welding wire (Muffler, 18%Cr-Ti)

Classifications

Not required

Description

- K-439T is designed for MAG welding of stainless steels of the 18%Cr-Ti types and suitable for automotive exhaust fabrications such as front pipe, bellows, flange etc. (AISI 430, 430Ti, 431)
- Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
- It would produce a moderately soft arc and low spatter generation.
- Slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- K-439T has the high tensile strength at the high temperature atmosphere.

Welding positions

Polarity & shielding gas

- Mix : Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ti
Mix	0.03	0.45	0.55	0.010	0.015	16.50	0.90

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
Example	390	495	24	Mix

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

K-439TE

Ferritic Stainless welding wire (Muffler, 18%Cr-Ti)

Classifications

Not required

Description

- K-439TE is designed for MIG welding of stainless steels of the 18%Cr-Ti types and suitable for automotive exhaust fabrications such as front pipe, bellows, flange etc. (AISI 430, 430Ti, 431)
- Wire is a metal type of flux cored wire for high speed welding on the plate as possible.
- It would produce a moderately soft arc and low spatter generation.
- Slag quantity is almost the same as solid wire and deposition rate is up to 20% higher than solid wire's one.
- K-439TE has the high tensile strength at the high temperature atmosphere.

Welding positions

Polarity & shielding gas

- Mix : 100% Ar,
  Ar+2% O_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr	Ti
Ar	0.03	0.42	0.53	0.010	0.010	17.00	0.60

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
Example	400	500	24	Ar

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

Dia. (mm)		1.2	Stick-out
Current (Amp.)	F (PA/1G)	180 ~ 260	(15 ~20mm)
	HF (PC/2G)	(22 ~25)	

Package

Dia. (mm)	1.2	1.32
Spool (kg)	12.5, 15	
Pailpack (kg)	100 ~ 200	

K-410T

Martensitic Stainless welding wire (13%Cr, Hardfacing)

Classifications

EN ISO 17633-A:2010	T 13 R C1/M21 4	AWS A5.22-2012	E410T0-1/4
EN ISO 17633-B:2010	TS 410-F C1/M21 0	JIS Z 3323-2007	TS410-FB0

Description

- K-410T is designed for MAG welding of martensite stainless alloys of the 13%Cr types and used for surfacing of sealing faces of valves for gas, water, and steam piping system at service temperatures up to 450°C.
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- K-410T is suitable for the first layer of corrosion resistant weld claddings.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
  Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	P	S	Cr
CO_2	0.07	0.28	0.35	0.012	0.005	12.85
Mix	0.07	0.34	0.45	0.011	0.005	13.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
EN ISO 17633-B		min. 450	min. 15	
Example (CO_2)	380	530	28	750℃x1Hr

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

- Refer to page 322 for more information on usage
- For joint welding, preheating to 200~300°C is recommended and tempering at 700~750°C to increase toughness.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-410NiMoT

Martensitic Stainless welding wire (13%Cr-Ni, Hardfacing)

Classifications

EN ISO 17633-A:2010	T 13 4 R M21 4	AWS A5.22-2012	E410NiMoT0-4
EN ISO 17633-B:2010	TS 410NiMo-F M21 0	JIS Z 3323-2007	TS410NiMo-FM0

Description

- 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)
- Wire is a metal type of flux cored wire for flat and horizontal position welding.
- K-410NiMoT features very good ductility, CVN toughness and crack resistance.
- The machinability of the weld metal depends largely upon the kind of base meal and degree of dilution.

Welding positions

Polarity & shielding gas

- Mix : Ar+20% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo
Mix	0.04	0.23	0.36	12.20	4.10	0.70

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.22		min. 760	min. 15	
EN ISO 17633-B	min. 500	min. 750	min. 15	
Example (Mix)	745	900	18	620℃x1Hr

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

- Refer to page 322 for more information on usage
- Preheating and interpass temperatures in case of thick-walled sections 100~160°C and maximum heat input 15kJ/cm and tempering at 580~620°C.

Package

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

Approvals

JIS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

K-410NiMoTC

Martensitic Stainless welding wire (13%Cr-Ni, Hardfacing)

Classifications

EN ISO 17633-A:2010	T 13 4 P C1 1	AWS A5.22-2012	E410NiMoT1-1
EN ISO 17633-B:2010	TS 410NiMo-F C1 1	JIS Z 3323-2007	TS410NiMo-FC1

Description

- K-410NiMoTC is designed for MAG welding of soft-martensite stainless alloys of the 13%Cr-4%Ni-Mo types. (AISI 403, 405, 410, JIS SCS3, SCS6, SB410, ASTM CA15M, CA6NM)
- Wire is a titania type of flux cored wire for all-position welding with 100%CO_2 gas.
- It features self-detaching slag, spray-like transfer, low spatter generation, smooth bead surface and high X-ray safety.
- The machinability of the weld metal depends largely upon the kind of base material and the degree of welding dilution.

Welding positions

Polarity & shielding gas

- CO_2 : 100% CO_2 (15~25ℓ/min)
- DCEP (DC+)

Typical chemical composition of all-weld metal (%)

Shielding gas	C	Si	Mn	Cr	Ni	Mo
CO_2	0.04	0.55	0.45	12.20	4.80	0.55

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	PWHT
AWS A5.22		min. 760	min. 15	
EN ISO 17633-B	min. 500	min. 750	min. 15	
Example (CO_2)	900	950	18	620℃x1Hr

☞ After machining, but before testing, the specimen was aged at a temperature 100°C for up to 48 hours then allowed to cool to room temperature.

Notes on usage and welding condition

- Refer to page 322 for more information on usage.
- Preheating and interpass temperatures in case of thick-walled sections 100~160°C and maximum heat input 15kJ/cm and tempering at 580~620°C.

Package

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

MEMO

TIG•MIG
Welding Consumables

TIG WELDING CONSUMABLES

FOR HIGH TENSILE STRENGTH STEEL

FOR HEAT-RESISTING STEEL

FOR STAINLESS STEEL

MIG WELDING CONSUMABLES

FOR STAINLESS STEEL

T-50

For mild steels and 490MPa tensile strength steel

Classifications

EN ISO 636-A:2017	W 46 3 3Si1	KS D 7140:2005	YGT50
EN ISO 636-B:2017	W 49A 3U 6	JIS Z 3316:2011	W 49 A 3U 6
AWS A5.18:2005	ER70S-6		

Description

- For mild steel and 490MPa tensile strength steel welding of structural steels, machineries and vehicles.
- Excellent mechanical and toughness properties in low temperature conditions.
- It is generally used in root pass welding of pipes in all positions.
- 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	0.012	0.015

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	Ar
EN 636-A	min. 460	530~680	min. 20	≥ 47	Ar
Example	490	580	30	130	Ar

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

Approvals

ABS, BV, DNV, LR, KR, RS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-50G

For mild steels and 490MPa tensile strength steel

Classifications

EN ISO 636-A:2017	W 46 3 3Si1	KS D 7140:2005	YGT50
EN ISO 636-B:2017	W 49A 3U 6	JIS Z 3316:2011	W 49 A 3U 6
AWS A5.18:2005	ER70S-G		

Description

- For mild steel and 490MPa tensile strength steel welding of structural steels, machineries and vehicles.
- Excellent mechanical and toughness properties in low temperature conditions.
- It is generally used in root pass welding of pipes in all positions.
- Proper tungsten electrode extension from the tip of torch is 1~3mm in general.

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.07	0.82	1.52	0.012	0.015

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	Ar
EN 636-A	min. 460	530~680	min. 20	≥ 47	Ar
Example	490	580	30	130	Ar

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

Approvals

ABS, BV, DNV, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-53

For mild steels and 490MPa tensile strength steel

Classifications

EN ISO 636-A:2017	W 46 3 2Si	KS D 7140:2005	YGT50
EN ISO 636-B:2017	W 49A 3U 3	JIS Z 3316:2011	W 49 A 3U 3
AWS A5.18:2005	ER70S-3		

Description

- For mild steel and 490MPa tensile strength steel welding of structural steels, machineries and vehicles.
- Excellent mechanical and toughness properties in low temperature conditions.
- It is generally used in root pass and to support the welding when back pass is impossible.

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.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	Ar
EN 636-A	min. 460	530~680	min. 20	≥ 47	Ar
Example	480	550	32	120	Ar

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

Approvals

ABS, DNV

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-70S2

For mild steels and 490MPa tensile strength steel

Classifications

EN ISO 636-A:2017	W 46 3 2Ti	KS D 7140:2005	YGT50
EN ISO 636-B:2017	W 49A 3U 2	JIS Z 3316:2011	W 49 A 3U 2
AWS A5.18:2005	ER70S-2		

Description

- For mild steel and 490MPa tensile strength steel welding of pipes, offshore drilling rigs and structural steels, etc.
- 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.
- This rod producing superior quality welds with minimum porosity even over rust and mill scale.

Typical chemical composition of rod (%)

C	Si	Mn	P	S
0.07	0.54	1.18	0.015	0.011

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.18	min. 400	min. 480	min. 22	≥ 27	Ar
EN 636-B	min. 390	490~670	min. 18	≥ 47	Ar
Example	490	570	29	180	Ar

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

Approvals

ABS, DNV, CWB, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-90

For 690MPa high strength steel

Classifications

EN ISO 16834-A:2012	W 62 6 I1 Mn3Ni1Mo	AWS A5.28:2005	ER90S-G
EN ISO 16834-B:2012	W 69A 6U I1 N2M1T	JIS Z 3316:2011	W 62 A 6U N2M1T

Description

- For TIG welding of 620MPa high tensile steel used for pipe line, offshore, structure, construction machinery, pressure vessels, etc.
- Used for welding high strength steels in many high stress, critical applications; also exhibiting excellent toughness down to -60°C.
- Typical applications can be found in the mining, mobile cranes, cement pumps shipbuilding, automotive and pressure vessel industries.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni	Mo
0.08	0.61	1.60	0.014	0.002	0.86	0.38

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28		min. 620			
EN 16834-A	min. 620	700~890	min. 18	≥ 47	As weld, Ar
EN 16834-B	min. 600	690~890	min. 14	≥ 47	As weld, Ar
Example	822	872	26	68	As weld, Ar

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-100

For 690MPa high strength steel

Classifications

EN ISO 16834-A:2012	W 62 5 I1 Z Mn3Ni1.5Mo	AWS A5.28:2005	ER100S-1/G
EN ISO 16834-B:2012	W 69A 5U I1 N4CM21T	JIS Z 3316:2011	W 69 A 5U N4CM21T

Description

- For TIG welding of 690MPa high tensile steel used for pipe line, offshore, structure, construction machinery, pressure vessels, etc.
- Used for welding high strength steels in many high stress, critical applications; also exhibiting excellent toughness down to -50°C.
- Typical applications can be found in the mining, mobile cranes, cement pumps shipbuilding, automotive and pressure vessel industries.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni	Mo
0.05	0.26	1.51	0.006	0.005	1.95	0.40

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	Remarks
AWS A5.28	min. 610	min. 690	min. 16	≥ 68	Ar
EN 16834-B	min. 600	690~890	min. 14	≥ 47	Ar
Example	710	760	27	330	Ar

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-100D

For 690MPa high strength steel

Classifications

EN ISO 16834-A:2012	W 62 5 I1 Z Mn3Ni1.5Mo	AWS A5.28:2005	ER100S-1/G
EN ISO 16834-B:2012	W 69A 5U I1 N4CM21T	JIS Z 3316:2011	W 69 A 5U N4CM21T

Description

- For TIG welding of 690MPa high tensile steel used for military low alloy applications.
- Used for welding high strength steels in many high stress, critical applications; also exhibiting excellent toughness down to -50°C.
- Typical applications can be found in the mining, mobile cranes, cement pumps shipbuilding, automotive and pressure vessel industries.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni	Mo
0.05	0.26	1.51	0.006	0.005	1.95	0.40

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	Remarks
AWS A5.28	min. 610	min. 690	min. 16	≥ 68	Ar
EN 16834-B	min. 600	690~890	min. 14	≥ 47	Ar
Example	710	760	27	330	Ar

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-110

For 830MPa high strength steel

Classifications

EN ISO 16834-A:2012	W 69 4 I1 Mn3Ni1CrMo
AWS A5.28:2005	ER110S-G

Description

- For MAG welding of 830MPa high tensile steel used for pipe line, offshore, structure, construction machinery, pressure vessels, etc.
- Welding materials such as S960QL – S1100Q and other similar fine grain cold tough steels.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni	Mo
0.08	0.52	1.68	0.002	0.003	1.41	0.24

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	Remarks
AWS A5.28		min.760			
EN 16834-A	min.690	770-940	min. 17	≥ 47	Ar
Example	773	831	26	294	Ar

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-120

For 830MPa high strength steel

Classifications

EN ISO 16834-A:2012	W 69 6 I1 Z
EN ISO 16834-B:2012	W 83A 6U I1 G
AWS A5.28:2005	ER120S-G
JIS Z 3316:2011	W 83 A 6 M 0

Description

- For MAG welding of 830MPa high tensile steel used for pipe line, offshore, structure, construction machinery, pressure vessels.
- Welding materials such as S960QL – S1100Q and other similar fine grain cold tough steels.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni	Mo
0.06	0.50	1.45	0.002	0.003	3.40	0.55

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28		830 min.	min. 14		As weld, Ar
EN 16834-A	min. 690	770~940	min. 17	≥ 47	As weld, Ar
EN 16834-B	min. 745	830~1,030	min. 12	≥ 47	As weld, Ar
Example	840	920	20	170	As weld, Ar

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-80D2

For 0.5%Mo heat-resistant steel

Classifications

AWS A5.28:2005	ER80S-D2	JIS Z 3316:2001	YGTM
KS D 7140:2005	YGTM		

Description

- For carbon and low alloy steels such as AISI 4130.
- Where the tensile strength provided by plan carbon steel rod are inadequate.
- This rod is designed to give high strength welds on high sulfer bearing(free-machning) steels or medium carbon steels.
- 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	P	S	Mo
0.08	0.58	1.85	0.014	0.009	0.46

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	Remarks
AWS A5.28	min. 470	min. 550	min. 17	≥ 27	Ar
Example	610	690	23	180	Ar

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-81CMA

For 1.25%Cr-0.5%Mo heat-resistant steel

Classifications

AWS A5.28:2005 ER80S-G
JIS 3317:2011 W 55-1CM3

Description

- For butt and filet welding of power plant, heat exchanger and oil refineries such as 1.25%Cr-0.5%Mo heat-resistant steel.
- Excellent mechanical and toughness properties after PWHT.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Preheat at 100°C to 200°C and post weld heat treatment at 620°C to 720°C is necessary according to the plate thickness, type of steels, shape of base metals or under high restricion.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Cr	Mo
0.10	0.55	0.90	0.010	0.003	1.29	0.49

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28		min. 550			PWHT, Ar
EN 21952-A	min. 355	min. 510	min. 20	≥ 47	PWHT, Ar
JIS Z 3317	min. 470	min. 530	min. 17		PWHT, Ar
Example	540	630	28	270	PWHT, Ar

* PWHT : 690°Cx1Hr.

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-80SB2

For 1.25%Cr-0.5%Mo heat-resistant steel

Classifications

EN ISO 21952-B:2012	W 55 I1 1CM	KS D 7140:2005	YGT1CM
AWS A5.28:2005	ER80S-B2	JIS Z 3317:2011	W 55-1CM

Description

- For butt and filet welding of power plant, heat exchanger and oil refineries such as 1.25%Cr-0.5%Mo heat-resistant steel.
- Excellent mechanical and toughness properties after PWHT.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Preheat at 100°C to 200°C and post weld heat treatment at 620°C to 720°C is necessary according to the plate thickness, type of steels, shape of base metals or under high restricion.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Cr	Mo
0.09	0.54	0.51	0.015	0.006	1.26	0.45

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.28	min. 470	min. 550	min. 19		PWHT, Ar
EN 21952-B	min. 470	min. 550	min. 17		PWHT
Example	500	590	26	80	PWHT, Ar

* PWHT : 620°Cx1Hr.

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-90SB3

For 2.25%Cr-1%Mo heat-resistant steel

Classifications

EN ISO 21952-B:2012	W 62 I1 2C1M	KS D 7140:2005	YGT2CM
AWS A5.28:2005	ER90S-B3	JIS Z 3317:2011	W 62-2C1M

Description

- For butt and fillet welding of power plant, heat exchanger and oil refineries such as 2.25%Cr-1%Mo heat-resistant steel.
- Excellent mechanical and toughness properties after PWHT.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Preheat at 150°C to 300°C and post weld heat treatment at 680°C to 730°C is necessary according to the plate thickness, type of steels, shape of base metals or under high restricion.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Cr	Mo
0.09	0.47	0.66	0.010	0.014	2.31	1.00

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	Remarks
AWS A5.28	min. 540	min. 620	min. 17		PWHT, Ar
EN 21952-B	min. 540	min. 620	min. 15		PWHT
Example	550	670	26	180	PWHT, Ar

* PWHT : 690°Cx1Hr.

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-90SB9

For 9%Cr-1%Mo-V heat-resistant steel

Classifications

EN ISO 21952-A:2012 W CrMo91
EN ISO 21952-B:2012 W 62 I1 9C1MV

AWS A5.28:2005 ER90S-B9

Description

- For butt and fillet welding of power plant, heat exchanger and oil refineries such as 9%Cr-1%Mo-V heat-resistant steel.
- Excellent mechanical and toughness properties after PWHT.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Preheat at 150°C to 300°C and post weld heat treatment at 740°C to 780°C 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	P	S	Cr	Mo
0.10	0.23	0.75	0.005	0.002	9.10	0.94

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 20℃	Remarks
AWS A5.28	min. 410	min. 620	min. 16		PWHT, Ar
EN 21952-A	min. 415	min. 585	min. 17	≥ 47	PWHT, Ar
EN 21952-B	min. 410	min. 620	min. 15		PWHT, Ar
Example	673	745	20	334	PWHT, Ar

* PWHT : 760°Cx2Hr.

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-90SB9W

For 9%Cr-0.5%Mo-Nb-V-W heat-resistant steel

Classifications

AWS A5.28:2005 ER90S-B9 (mod.)

Description

- For butt and fillet welding of power plant, heat exchanger and oil refineries such as 9%Cr-0.5%Mo-Nb-V-W heat-resistant steel.
- Proper tungsten electrode extension from the tip of torch is 4~6mm in general.
- Excellent Creep strength, toughness, fatigue life, and corrosion resistance at elevated temperatures.
- Preheat at 150°C to 300°C and post weld heat treatment at 740°C to 780°C 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	P	S	Cr	Mo
0.10	0.24	0.54	0.007	0.003	8.88	0.43

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.28		min. 620		Ar
Example	775	860	15	PWHT, Ar

* PWHT : 760°Cx2Hr.

Operating data

Dia. (mm)	2.4 ~ 3.2
Current (Amp.)	200 ~ 300

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-80SNi1

For low temperature service steel(1.0%Ni)

Classifications

AWS A5.28:2005 ER80S-Ni1

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -45°C.
- Suited for welding 1%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.
- GTAW rod for welding of low temperature equiment and structure.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni
0.09	0.63	1.11	0.009	0.008	0.83

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -45℃	Remarks
AWS A5.28	min. 470	min. 550	min. 24	27	-
Example	592	678	35	162(@-45℃) 133(@-60℃)	As Weld

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-80SNi2

For low temperature service steel(2.0%Ni)

Classifications

EN ISO 636-A:2017	W 46 6 2Ni2
AWS A5.28:2005	ER80S-Ni2

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -60°C.
- Suited for welding 2%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.
- GTAW rod for welding of low temperature equiment and structure.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni
0.09	0.52	1.08	0.007	0.005	2.30

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	Remarks
AWS A5.28	min. 470	min. 550	min. 24	27	-
Example	540	650	34	256(@-60℃) 166(@-70℃)	As Weld
Example	580	680	32	261(@-60℃) 221(@-70℃)	PWHT

* PWHT : 620°Cx1Hr.

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-80SNi3

For low temperature service steel(3.0%Ni)

Classifications

AWS A5.28:2005 ER80S-Ni3

Description

- It is designed for welding of 550MPa high tensile steel for low temperature service of below -75°C.
- suited for welding 3%Ni steel and other low temperature for low temperature pressure vessel, tank and pipe.
- Very good weldability in out of position work.
- GTAW rod for welding of low temperature equiment and structure.

Typical chemical composition of rod (%)

C	Si	Mn	P	S	Ni
0.02	0.61	1.00	0.007	0.010	3.40

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -75℃	Remarks
AWS A5.28	min. 470	min. 550	min. 24	27	-
Example	494	583	33	139(@-60℃) 81(@-75℃)	PWHT

* PWHT : 620°Cx8Hr.

Operating data

Dia. (mm)	Voltage	Ampere
0.9	10~12	50~70
1.2	10~12	70~100
1.6	12~15	100~125
2.4	15~20	125~175
3.2	15~20	175~200

Polarity and Shielding gas

- DCEP (DC-)
- Ar : 100%Ar (15~25ℓ/min.)

T-2209

For duplex stainless steels (Low carbon, 22%Cr-9%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 22 9 3 N L	AWS A5.9:2012	ER2209
EN ISO 14343-B:2017	SS 2209	JIS Z 3321:2013	YS2209

Description

- TIG welding of 22%Cr-9%Ni-3%Mo duplex stainless steels. (UNS S31803, STS 329J1, 329J2L)
- A various application of the petrochemical offshore structure and distilling apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.40	1.67	8.70	22.70	3.10

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -10℃	IV (J) -47℃
AWS A5.9		min. 690	min. 20		
EN ISO 14343	min. 450	min. 550	min. 20		
Example	769	855	35	183	160

Approvals

ABS, BV, DNV, LR, KR, RS, JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-2594

For Super duplex stainless steels (25%Cr-9%Ni-4%Mo STS)

Classifications

EN ISO 14343-A:2017	W 25 9 4 N L	AWS A5.9:2012	ER2594
EN ISO 14343-B:2017	SS 2594	JIS Z 3321:2013	YS329J4L

Description

- TIG welding of 25%Cr-9%Ni-4%Mo duplex stainless steels. (UNS S32750, S32760, S32550, S31260)
- A various application of the petrochemical offshore structure and distilling apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo	PREN
0.02	0.42	0.66	9.18	25.06	3.88	41

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) -50℃
AWS A5.9		min. 760	min. 15		
EN ISO 14343	min. 550	min. 620	min. 18		
Example	640	800	32	220	200

Approvals

ABS, BV, DNV, LR, JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-308

For austenite stainless steel (Low carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-B:2017	SS 308	KS D 3696:2016	STSY308
AWS A5.9:2012	ER308	JIS Z 3321:2013	YS308

Description

- TIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical , flesh water, medicine and fertilizer industrial apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.04	0.41	1.90	9.71	19.80

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 550	min. 35		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	362	599	40	210	70

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-308L

For austenite stainless steel (Low carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	W 19 9 L	KS D 3696:2016	STSY308L
EN ISO 14343-B:2017	SS 308L	JIS Z 3321:2013	YS308L
AWS A5.9:2012	ER308L		

Description

- TIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical , nuclear power plant appratuese.
- WRC 1992 FN 3~8 (Chemical Composition of wire, If required)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.02	0.38	1.90	9.77	19.79

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 35		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	390	580	44	160	80

Approvals

ABS, BV, DNV, LR, KR, RS, JIS, CE, TUV ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-308H

For austenite stainless steel (Medium carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	W 19 9 H	AWS A5.9:2012	ER308H
EN ISO 14343-B:2017	SS 308H	JIS Z 3321:2013	YS308H

Description

- TIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 304H)
- A various application of the petrochemical , flesh water, medicine and fertilizer industrial apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.05	0.42	2.06	9.80	19.80

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 550	min. 35		
EN ISO 14343	min. 350	min. 550	min. 30		
Example	362	599	40	210	70

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-308LSi

For austenite stainless steel (Low carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	W 19 9 L Si	AWS A5.9:2012	ER308LSi
EN ISO 14343-B:2017	SS 308LSi	JIS Z 3321:2013	YS308LSi

Description

- TIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical , nuclear power plant appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.85	1.68	9.89	19.63

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 35		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	472	538	47	174	98

Approvals

CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-309

For austenite stainless steel (Dissimilar steels)

Classifications

EN ISO 14343-A:2017	W 22 12 H	KS D 3696:2016	STSY309
EN ISO 14343-B:2017	SS 309	JIS Z 3321:2013	YS309
AWS A5.9:2012	ER309		

Description

- TIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.05	0.42	1.55	13.09	23.12

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 550	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	452	573	45	184	38

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-309L

For austenite stainless steel (Low carbon, Dissimilar steels)

Classifications

EN ISO 14343-A:2017	W 23 12 L	KS D 3696:2016	STSY309L
EN ISO 14343-B:2017	SS 309L	JIS Z 3321:2013	YS309L
AWS A5.9:2012	ER309L		

Description

- TIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.45	1.64	13.78	23.09

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	445	568	42	130	52

Approvals

BV, DNV, LR, KR, RS, JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-309LSi

For austenite stainless steel (Low carbon, Dissimilar steels)

Classifications

EN ISO 14343-A:2017	W 23 12 L Si	AWS A5.9:2012	ER309LSi
EN ISO 14343-B:2017	SS 309LSi	JIS Z 3321:2013	YS309LSi

Description

- TIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.91	1.86	13.62	23.07

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃
AWS A5.9		min. 520	min. 30	
EN ISO 14343	min. 320	min. 510	min. 25	
Example	410	520	42	120

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-309LMo

For austenite stainless steel (22%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 23 12 2 L	AWS A5.9:2012	ER309LMo
EN ISO 14343-B:2017	SS 309LMo	JIS Z 3321:2013	YS309LMo

Description

- TIG welding of 22%Cr-12%Ni-2%Mo austenite stainless steels.
- A various application of the petrochemical plant appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.45	1.51	14.62	21.59	2.60

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
EN ISO 14343	min. 350	min. 550	min. 25		
Example	420	660	33	92	89

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-310

For austenite stainless steel (25%Cr-20%Ni STS)

Classifications

EN ISO 14343-A:2017	W 25 20	KS D 3696:2016	STSY310
EN ISO 14343-B:2017	SS 310	JIS Z 3321:2013	YS310
AWS A5.9:2012	ER310		

Description

- TIG welding of 25%Cr-20%Ni austenite stainless steels. (AISI 310S, SCS 18, SCh 21, 22, SUH 310)
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.10	0.41	1.60	20.84	26.74

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃
AWS A5.9		min. 550	min. 30	
EN ISO 14343	min. 350	min. 550	min. 20	
Example	370	570	35	120

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-312

For austenite stainless steel (Dissimilar steels)

Classifications

EN ISO 14343-A:2017	W 29 9	KS D 3696:2016	STSY312
EN ISO 14343-B:2017	SS 312	JIS Z 3321:2013	YS312
AWS A5.9:2012	ER312		

Description

- TIG welding of 29%Cr-9%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application to high, low carbon steel and cald welding.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.11	0.41	1.81	8.92	30.63

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.9		min. 660	min. 22
EN ISO 14343	min. 450	min. 650	min. 15
Example	480	790	25

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-316

For austenite stainless steel (18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-B:2017	SS 316	KS D 3696:2016	STSY316
AWS A5.9:2012	ER316	JIS Z 3321:2013	YS316

Description

- TIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316)
- A various application of the petrochemical industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.44	1.60	12.17	19.22	2.26

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	456	559	51	187	76

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-316L

For austenite stainless steel (Low carbon, 18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 19 12 3 L	KS D 3696:2016	STSY316L
EN ISO 14343-B:2017	SS 316L	JIS Z 3321:2013	YS316L
AWS A5.9:2012	ER316L		

Description

- TIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316, 316L)
- A various application of chemical plant, fiber and paper industrial appratuese.
- WRC 1992 FN 3~8 (Chemical Composition of wire, If required)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.40	1.73	11.17	18.15	2.22

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 490	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	430	560	40	150	45

Approvals

ABS, BV, DNV, LR, KR, RS, CE,TUV, JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-316H

For austenite stainless steel (18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 19 12 3 H	AWS A5.9:2012	ER316H
EN ISO 14343-B:2017	SS 316H	JIS Z 3321:2013	YS316H

Description

- TIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316)
- A various application of the petrochemical industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.44	1.60	12.17	19.22	2.26

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	456	559	51	187	76

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-316LSi

For austenite stainless steel (Low carbon, 18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 19 12 3 L Si	AWS A5.9:2012	ER316LSi
EN ISO 14343-B:2017	SS 316LSi	JIS Z 3321:2013	YS316LSi

Description

- TIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316, 316L)
- A various application of the petrochemical industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.87	1.55	11.57	18.58	2.54

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 490	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	494	647	44	154	78

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-317L

For austenite stainless steel (Low carbon, 20%Cr-14%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	W 18 15 3 L	KS D 3696:2016	STSY317L
EN ISO 14343-B:2017	SS 317L	JIS Z 3321:2013	YS317L
AWS A5.9:2012	ER317L		

Description

- TIG welding of 20%Cr-14%Ni-3.5Mo austenite stainless steels. (AISI STS 316, 316L, 317)
- A various application of the petrochemical industrial appraturese used in acid atmosphere.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.38	1.63	13.52	19.06	3.09

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 300	min. 480	min. 25		
Example	380	560	34	150	50

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-347

For austenite stainless steel (Low Carbon, 20%Cr-10%Ni-Nb STS)

Classifications

EN ISO 14343-A:2017	W 19 9 Nb	KS D 3696:2016	STSY347
EN ISO 14343-B:2017	SS 347	JIS Z 3321:2013	YS347
AWS A5.9:2012	ER347		

Description

- TIG welding of 20%Cr-10%Ni-Nb austenite stainless steels. (AISI STS 347, 321)
- A various application of chemical plant industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.05	0.40	1.55	9.03	19.04	0.68

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	513	704	33	105	19

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

TIG Consumables

T-385

For STS 904L (20%Cr-25%Ni-5%Mo STS)

Classifications

EN ISO 14343-A:2009	W 20 25 5 Cu L	AWS A5.9:2012	ER385
EN ISO 14343-B:2009	SS 385	JIS Z 3321:2013	YS385

Description

- TIG rod used in environments requiring sulfuric acid and pitting resistance.
- It also has good oxidiation resistance and high temperature strength.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo	Cu
0.01	0.34	1.57	25.8	20.0	4.3	1.5

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	472	588	45.6	110	75

TIG Consumables

T-410

For martensite stainless steel (Low Carbon,12%Cr STS)

Classifications

EN ISO 14343-A:2017	W 13	KS D 3696:2016	STSY410
EN ISO 14343-B:2017	SS 410	JIS Z 3321:2013	YS410
AWS A5.9:2012	ER410		

Description

- TIG welding of 12%Cr martensite stainless steels. (AISI STS 403, 410)
- It's used for surfacing of sealing faces of valves for gas, water and steam piping system at service temperatures up to 450°C.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.32	0.36	0.19	12.61

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.9		min. 520	min. 20	
EN ISO 14343	min. 250	min. 450	min. 15	PWHT
Example	270	530	37	

* PWHT : Heat to 730~760°C, for 1h, Furnace cooling down to 315°C, then air cooling.

Approvals

JIS * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-420

For martensite stainless steel (12%Cr STS)

Classifications

EN ISO 14343-B:2017	SS 420	JIS Z 3321:2013	YS420
AWS A5.9:2012	ER420		

Description

- TIG welding of 12%Cr martensite stainless steels. (AISI 420)
- It's used for surfacing of sealing faces of valves for gas, water and steam piping system at service temperatures up to 450°C.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.33	0.39	0.40	0.16	12.56

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 14343	min. 250	min. 450	min. 15	PWHT
Example	310	510	20	

* PWHT : Heat to 840~870°C for 2h.

T-430

For ferrite stainless steels (16%Cr STS)

Classifications

EN ISO 14343-B:2017	SS 430	KS D 3696:2016	STSY430
AWS A5.9:2012	ER430	JIS Z 3321:2013	YS430

Description

- TIG welding of 16%Cr ferrite stainless steels. (AISI 409, 430Ti, 431, ASTM A176)
- It's used for automobile muffler welding.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.32	0.39	0.24	16.67

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.9		min. 520	min. 20	
EN ISO 14343	min. 300	min. 450	min. 15	PWHT
Example	310	530	29	

* PWHT : Heat to 760~790°C for 2h.

Approvals

JIS * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

T-430LNb

For ferrite stainless steels (16%Cr-Nb STS)

Classifications

EN ISO 14343-A:2007	W 18 L Nb	JIS Z 3321:2013	YS430LNb

Description

- TIG welding of 16%Cr-Nb ferrite stainless steels. (AISI 405, 410L, 429, 430, 444)
- It's used for front pipe and manifold of automobile exhaust system.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.02	0.40	0.39	0.25	18.01	0.50

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	High Temp T.S (MPa, 850℃)	High Temp El. (%, 850℃)
EN ISO 14343	min. 220	min. 410	min. 15		
Example		450	19	48	45

M-2209

For duplex stainless steels (Low carbon, 22%Cr-9%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 22 9 3 N L	AWS A5.9:2012	ER2209
EN ISO 14343-B:2017	SS 2209	JIS Z 3321:2013	YS2209

Description

- MIG welding of 22%Cr-9%Ni-3%Mo duplex stainless steels. (UNS S31803, STS 329J1, 329J2L)
- A various application of the petrochemical offshore structure and distilling apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.40	1.67	8.70	22.70	3.10

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -46℃
AWS A5.9		min. 690	min. 20	
EN ISO 14343	min. 450	min. 550	min. 20	
Example	580	840	28	110

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-2594

For Super duplex stainless steels (25%Cr-9%Ni-4%Mo STS)

Classifications

EN ISO 14343-A:2017	G 25 9 4 N L	AWS A5.9:2012	ER2594
EN ISO 14343-B:2017	SS 2594	JIS Z 3321:2013	YS329J4L

Description

- MIG welding of 25%Cr-9%Ni-4%Mo duplex stainless steels. (UNS S32750, S32760, S32550, S31260)
- A various application of the petrochemical offshore structure and distilling apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo	PREN
0.02	0.42	0.66	9.18	25.06	3.88	41

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) RT	IV (J) -46℃
AWS A5.9		min. 760	min. 15		
EN ISO 14343	min. 550	min. 620	min. 18		
Example	726	875	23	110	75

Approvals

JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-307Si

For austenite stainless steel (18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017 G 18 8 Mn

Description

- MIG welding of 18%Cr-8%Ni-7%Mn austenite stainless steels.
- It used for disiimilar steel such as austenitic manganese steel to carbon steel forgings.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.07	0.64	6.79	8.91	18.79

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -40℃
EN ISO 14343	min. 350	min. 500	min. 25		
Example	436	619	42	111	77

Approvals

CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-308

For austenite stainless steel (18%Cr-8%Ni STS)

Classifications

EN ISO 14343-B:2017	SS 308	KS D 3696:2016	STSY308
AWS A5.9:2012	ER308	JIS Z 3321:2013	YS308

Description

- MIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical , flesh water, medicine and fertilizer industrial apparatuses.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.04	0.47	1.61	9.57	19.87

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -105℃
AWS A5.9		min. 550	min. 35		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	369	573	40	109	68

Approvals

JIS * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-308L

For austenite stainless steel (Low carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	G 19 9 L	KS D 3696:2016	STSY308L
EN ISO 14343-B:2017	SS 308L	JIS Z 3321:2013	YS308L
AWS A5.9:2012	ER308L		

Description

- MIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical , nuclear power plant appratuese.
- WRC 1992 FN 3~8 (Chemical Composition of wire, If required)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.49	1.75	9.64	19.63

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 35		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	331	618	40	102	51

Approvals

TUV, DB, JIS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-308H

For austenite stainless steel (18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	G 19 9 H	AWS A5.9:2012	ER308H
EN ISO 14343-B:2017	SS 308H	JIS Z 3321:2013	YS308H

Description

- MIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 304H)
- A various application of the petrochemical, flesh water, medicine and fertilizer industrial apparatuses.

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

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -105℃
AWS A5.9		min. 550	min. 35		
EN ISO 14343	min. 350	min. 550	min. 30		
Example	369	573	40	109	68

Approvals

JIS ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-308LSi

For austenite stainless steel (Low carbon, 18%Cr-8%Ni STS)

Classifications

EN ISO 14343-A:2017	G 19 9 L Si	AWS A5.9:2012	ER308LSi
EN ISO 14343-B:2017	SS 308LSi	JIS Z 3321:2013	YS308LSi

Description

- MIG welding of 18%Cr-8%Ni austenite stainless steels. (AISI STS 301, 302, 304)
- A various application of the petrochemical, nuclear power plant appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.85	1.68	9.89	19.63

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 35		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	390	580	43	180	80

Approvals

TUV, DB, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-309

For austenite stainless steel (Dissimilar steels)

Classifications

EN ISO 14343-A:2017	G 22 12 H	KS D 3696:2016	STSY309
EN ISO 14343-B:2017	SS 309	JIS Z 3321:2013	YS309
AWS A5.9:2012	ER309		

Description

- MIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.05	0.42	1.55	13.29	23.12

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 550	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	366	570	37	93	32

Approvals

BV, JIS ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-309L

For austenite stainless steel (Low carbon, Dissimilar steels)

Classifications

EN ISO 14343-A:2017	G 23 12 L	KS D 3696:2016	STSY309L
EN ISO 14343-B:2017	SS 309L	JIS Z 3321:2013	YS309L
AWS A5.9:2012	ER309L		

Description

- MIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.45	1.64	13.78	23.09

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	400	588	38	90	43

Approvals

BV, TUV, DB, JIS, CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-309LSi

For austenite stainless steel (Low carbon, Dissimilar steels)

Classifications

EN ISO 14343-A:2017	G 23 12 L Si	AWS A5.9:2012	ER309LSi
EN ISO 14343-B:2017	SS 309LSi	JIS Z 3321:2013	YS309LSi

Description

- MIG welding of 22%Cr-12%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.91	1.86	13.62	23.07

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	435	609	39	114	56

Approvals

TUV, DB, JIS, CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-309LMo

For austenite stainless steel (22%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 23 12 2 L	AWS A5.9:2012	ER309LMo
EN ISO 14343-B:2017	SS 309LMo	JIS Z 3321:2013	YS309LMo

Description

- MIG welding of 22%Cr-12%Ni-2%Mo austenite stainless steels.
- A various application of the petrochemical plant appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.45	1.51	14.62	21.59	2.60

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
EN ISO 14343	min. 350	min. 550	min. 25		
Example	420	660	33	92	89

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-310

For austenite stainless steel (25%Cr-20%Ni STS)

Classifications

EN ISO 14343-A:2017	G 25 20	KS D 3696:2016	STSY310
EN ISO 14343-B:2017	SS 310	JIS Z 3321:2013	YS310
AWS A5.9:2012	ER310		

Description

- MIG welding of 25%Cr-20%Ni austenite stainless steels. (AISI 310S, SCS 18, SCh 21, 22, SUH 310)
- A various application of petrochemical and fiber industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.10	0.41	1.60	20.84	26.74

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃
AWS A5.9		min. 550	min. 30	
EN ISO 14343	min. 320	min. 550	min. 20	
Example	370	600	40	110

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-312

For austenite stainless steel (29%Cr-9%Ni STS)

Classifications

EN ISO 14343-A:2017	G 29 9	KS D 3696:2016	STSY312
EN ISO 14343-B:2017	SS 312	JIS Z 3321:2013	YS312
AWS A5.9:2012	ER312		

Description

- MIG welding of 29%Cr-9%Ni STS and dissimilar steels such as 304L to mild steels or low alloy steels.
- A various application to high, low carbon steel and cald welding.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.11	0.41	1.81	8.92	30.63

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.9		min. 660	min. 22
EN ISO 14343	min. 450	min. 650	min. 15
Example		730	30

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-316

For austenite stainless steel (18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-B:2017	SS 316	KS D 3696:2016	STSY316
AWS A5.9:2012	ER316	JIS Z 3321:2013	YS316

Description

- MIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316)
- A various application of the petrochemical industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.44	1.60	12.17	19.22	2.26

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 490	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	402	507	40	103	45

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-316L

For austenite stainless steel (Low carbon, 18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 19 12 3 L	KS D 3696:2016	STSY316L
EN ISO 14343-B:2017	SS 316L	JIS Z 3321:2013	YS316L
AWS A5.9:2012	ER316L		

Description

- MIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316)
- A various application of the petrochemical industrial appratuese.
- WRC 1992 FN 3~8 (Chemical Composition of wire, If required)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.02	0.51	1.61	11.81	18.78	2.49

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 490	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	394	556	41	113	62

Approvals

BV, DNV, KR, CE, TUV, DB, JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-316H

For austenite stainless steel (18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 19 12 3 H	AWS A5.9:2012	ER316H
EN ISO 14343-B:2017	SS 316H	JIS Z 3321:2013	YS316H

Description

- MIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316)
- A various application of the petrochemical industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.04	0.44	1.60	12.17	19.22	2.26

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	402	571	40	104	45

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-316LSi

For austenite stainless steel (Low carbon, 18%Cr-12%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 19 12 3 L Si	AWS A5.9:2012	ER316LSi
EN ISO 14343-B:2017	SS 316LSi	JIS Z 3321:2013	YS316LSi

Description

- MIG welding of 18%Cr-12%Ni-2%Mo austenite stainless steels. (AISI STS 316, 316L)
- A various application of chemical plant, fiber and paper inductrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.87	1.55	11.57	18.58	2.54

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 490	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	432	613	37	127	57

Approvals

ABS, JIS, CE, TUV, DB ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-317L

For austenite stainless steel (Low carbon, 20%Cr-14%Ni-Mo STS)

Classifications

EN ISO 14343-A:2017	G 18 15 3 L	KS D 3696:2016	STSY317L
EN ISO 14343-B:2017	SS 317L	JIS Z 3321:2013	YS317L
AWS A5.9:2012	ER317L		

Description

- MIG welding of 20%Cr-14%Ni-3.5Mo austenite stainless steels. (AISI STS 316, 316L, 317)
- A various application of the petrochemical industrial appraturese used in acid atmosphere.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo
0.01	0.38	1.63	13.52	19.06	3.09

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 300	min. 480	min. 25		
Example	403	589	39	98	30

Approvals

JIS ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-347

For austenite stainless steel (Low Carbon, 20%Cr-10%Ni-Nb STS)

Classifications

EN ISO 14343-A:2017	G 19 9 Nb	KS D 3696:2016	STSY347
EN ISO 14343-B:2017	SS 347	JIS Z 3321:2013	YS347
AWS A5.9:2012	ER347		

Description

- MIG welding of 20%Cr-10%Ni-Nb austenite stainless steels. (AISI STS 347, 321)
- A various application of chemical plant industrial appratuese.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.05	0.40	1.55	9.03	19.04	0.68

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 350	min. 550	min. 25		
Example	467	674	40	123	31

Approvals

JIS, CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-385

For austenite stainless steel (STS 904L, 20%Cr-25%Ni-5%Mo)

Classifications

EN ISO 14343-A:2009	G 20 25 5 Cu L	AWS A5.9:2012	ER385
EN ISO 14343-B:2009	SS 385	JIS Z 3321:2013	YS385

Description

- As a welding material with improved sulfuric acid and pitting resistance used in the petrochemical industry, it has excellent oxidation resistance and high temperature strength. (STS 904L, STS 317L)

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Mo	Cu
0.01	0.34	1.57	25.8	20.0	4.3	1.5

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) 0℃	IV (J) -196℃
AWS A5.9		min. 520	min. 30		
EN ISO 14343	min. 320	min. 510	min. 25		
Example	388	582	42.2	233	148

M-410

For martensite stainless steel (Low Carbon,12%Cr STS)

Classifications

EN ISO 14343-A:2017	G 13	KS D 3696:2016	STSY410
EN ISO 14343-B:2017	SS 410	JIS Z 3321:2013	YS410
AWS A5.9:2012	ER410		

Description

- MIG welding of 12%Cr martensite stainless steels. (AISI STS 403, 410)
- It's used for surfacing of sealing faces of valves for gas, water and steam piping system at service temperatures up to 450°C.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.32	0.36	0.19	12.61

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.9		min. 520	min. 20	
EN ISO 14343	min. 250	min. 450	min. 15	PWHT
Example		540	35	

* PWHT : Heat to 730~760°C, for 1h, Furnace cooling down to 315°C, then air cooling

Approvals

JIS * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

M-420

For martensite stainless steel (12%Cr STS)

Classifications

EN ISO 14343-B:2017	SS 420	JIS Z 3321:2013	YS420
AWS A5.9:2012	ER420		

Description

- MIG welding of 12%Cr martensite stainless steels. (AISI 420)
- It's used for surfacing of sealing faces of valves for gas, water and steam piping system at service temperatures up to 450°C.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.33	0.39	0.40	0.16	12.56

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 14343	min. 250	min. 450	min. 15	PWHT
Example		510	20	

* PWHT : Heat to 840~870°C, for 2h, Furnace cooling down to 600°C, then air cooling.

MIG Consumables

M-430

For ferrite stainless steels (16%Cr STS)

Classifications

EN ISO 14343-B:2017	SS 430	KS D 3696:2016	STSY430
AWS A5.9:2012	ER430	JIS Z 3321:2013	YS430

Description

- MIG welding of 16%Cr ferrite stainless steels. (AISI 409, 430Ti, 431, ASTM A176)
- It's used for automobile muffler welding.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr
0.01	0.32	0.39	0.24	16.67

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.9		min. 520	min. 20	
EN ISO 14343	min. 250	min. 450	min. 15	PWHT
Example	310	510	35	

* PWHT : Heat to 760~790°C, for 2h Furnace cooling down to 600°C, then air cooling.

Approvals

JIS * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

MIG Consumables

M-430LNb

For ferrite stainless steels (16%Cr-Nb STS)

Classifications

EN ISO 14343-A:2017	G 18 L Nb	JIS Z 3321:2013	YS430LNb

Description

- TIG welding of 16%Cr-Nb ferrite stainless steels. (AISI 405, 410L, 429, 430, 444)
- It's used for front pipe and manifold of automobile exhaust system.

Typical chemical composition of wire (%)

C	Si	Mn	Ni	Cr	Nb+Ta
0.02	0.40	0.39	0.25	18.01	0.50

Typical mechanical properties of all-weld-metal

	Y.S (MPa)	T.S (MPa)	El. (%)	High Temp T.S (MPa, 850℃)	High Temp El. (%, 850℃)
EN ISO 14343	min. 220	min. 410	min. 15	48	45
Example	437	547	15		

MEMO

Submerged Arc Welding Consumables

FOR HIGH TENSILE STRENGTH STEEL

FOR LOW TEMPERATURE SERVICE STEEL

FOR HEAT-RESISTING STEEL

FOR STAINLESS STEEL

FOR HARDFACING STEEL

EF-100×KD-50

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA RS 1 81 AC
- **Flux/ Wire-combination**
  EN ISO 14171 - 2016 S 46 0 RS S4
  AWS A5.17-97(R2007) F7A(P)0-EH14
  KS B ISO 14171-2014 S 46 0 RS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of H-beams, spiral pipes, machinery, bridges and structural steels.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350℃ for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.47	1.25	0.023	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -0℃	IV (J) -18℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	530	600	29	80	60	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, CCS

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-100×KD-EH12K

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA RS 1 81 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 Z RS S3Si
  AWS A5.17-97(R2007) F7A(P)Z-EH12K
  KS B ISO 14171-2014 S 46 Z RS S3Si
  JIS Z 3183-2012 S501-H
- **SAW solid wire**
  EN ISO 14171-2016 S3Si
  AWS A5.17-97(R2007) EH12K

Description

- Single and multi-layer welding of structural steels, pipes and general fabrications.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.06	0.75	1.10	0.022	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) +20℃	IV (J) -0℃	Remarks
AWS A5.17	min. 400	480~660	min. 22			
EN ISO 14171	min. 460	530~680	min. 20			
Example	550	610	27	80	50	AW

* AW : As-Welded

EF-100H×KD-50

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 72 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 3 AB S4
  AWS A5.17-97(R2007) F7A(P)2-EH14
  KS B ISO 14171-2014 S 46 3 AB S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of ship buildings, bridges, structural steels and other fabrications.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.29	1.42	0.025	0.011

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -29℃	IV (J) -30℃	Remarks
AWS A5.17	min. 400	480~660	min. 22	≥ 27		
EN ISO 14171	min. 460	530~680	min. 20		≥ 47	
Example	560	605	28	100	100	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-100H×KD-EH12K

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 72 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 3 AB S3Si
  AWS A5.17-97(R2007) F7A(P)2-EH12K
  KS B ISO 14171-2014 S 46 3 AB S3Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S3Si
  AWS A5.17-97(R2007) EH12K

Description

- Single and multi-layer welding of pipes, ships, machinery, boilers, bridges and structural steels.
- Excellent impact tougheness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.06	0.48	1.33	0.024	0.009

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -29℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	540	590	30	100	70	AW

* AW : As-Welded

EF-100S×KD-42

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 77 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 2 AB S2Si
  AWS A5.17-97(R2007) F7A(P)2-EM12K
  KS B ISO 14171-2014 S 46 2 AB S2Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Si
  AWS A5.17-97(R2007) EM12K

Description

- Active flux for limited pass welding of ship buildings, steel frames, structures and bridges.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- High speed on dirty plate.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.05	0.55	1.60	0.025	0.012

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -20℃	IV (J) -29℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	545	600	29	70	50	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-100S×KD-41/KD-43

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 77 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 42 0 AB S1 / S 46 2 AB SZ
  AWS A5.17-97(R2007) F7A0-EL12 / F7A(P)0-EM13K
  KS B ISO 1417-2014 S 42 0 AB S1 / S 46 2 AB SZ
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S1 / SZ
  AWS A5.17-97(R2007) EL12 /EM13K

Description

- Active flux for limited pass welding of ship buildings, steel frames, structures and bridges.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- High speed on dirty plate.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

Wire	C	Si	Mn	P	S
KD-41	0.04	0.37	1.10	0.021	0.014
KD-43	0.04	0.80	1.65	0.022	0.012

Typical mechanical properties of all-weld metal

Wire	Y.S (MPa)	T.S (MPa)	El. (%)	Charpy V-notch Temp. (℃)	Vaule (J)	AWS Classification
KD-41	450	530	30	-18	60	A5.17 : F7A0-EL12
KD-43	560	610	28	-18	70	A5.17 : F7A(P)0-EM13K

EF-100SB×KD-50

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 66 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 3 AB S4
  AWS A5.17-97(R2007) F7A2-EH14
  KS B ISO 14171-2014 S 46 3 AB S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of ship buildings, bridges, structural steels and other fabrications.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.08	0.23	1.70	0.014	0.018

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -29℃	IV (J) -30℃	Remarks
AWS A5.17	min. 400	480~660	min. 22	≥ 27		
EN ISO 14171	min. 460	530~680	min. 20		≥ 47	
Example	568	608	29	100	100	AW

* AW : As-Welded

EF-200×KD-40(41)

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 69 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 42 4 AB SZ (S1)
  AWS A5.17-97(R2007) F7A(P)4-EL8(EL12)
  KS B ISO 14171-2014 S 42 4 AB SZ (S1)
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ (S1)
  AWS A5.17-97(R2007) EL8(EL12)

Description

- Active flux for limited pass welding of ship buildings, bridges, structural steels and general fabrications.
- Excellent impact tougheness and crack resistibility.
- Applicable to one-side welding.
- Suitable for welding of thick plate in both side single-layer welding.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.06	0.28	1.50	0.024	0.012

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 420	500~640	min. 20		≥ 47	
Example	470	550	32	100	80	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200K×KD-42

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 57 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 5 CS S2Si
  AWS A5.17-97(R2007) F7A(P)6-EM12K
  KS B ISO 14171-2014 S 46 5 CS S2Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Si
  AWS A5.17-97(R2007) EM12K

Description

- Single and multi-layer welding of ship buildings, structural steels, offshore structures and pressure vessels.
- Excellent impact toughness and crack resistibility.
- Good resistance to porosity on rust, scales, oil and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.08	0.35	1.65	0.026	0.009

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	550	610	29	80	80	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200V×KD-50

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 5 CS S4
  AWS A5.17-97(R2007) F7A(P)6-EH14
  KS B ISO 14171-2014 S 46 5 CS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of ship buildings, structural steels, pressure vessels and bridges.
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.12	1.70	0.025	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	540	590	29	100	100	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, RS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200V×KD-42

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 42 5 CS S2Si
  AWS A5.17-97(R2007) F7A(P)6-EM12K
  KS B ISO 14171-2014 S 42 5 CS S2Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Si
  AWS A5.17-97(R2007) EM12K

Description

- Single and multi-layer welding of machinery, pressure vessels, ship buildings and structural steels.
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.08	0.29	1.20	0.026	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 420	500~640	min. 20	≥ 47		
Example	460	530	31	80	80	AW

* AW : As-Welded

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200V×KD-EH12K

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S3Si
  AWS A5.17-97(R2007) F7A(P)8-EH12K
  KS B ISO 14171-2014 S 46 6 CS S3Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S3Si
  AWS A5.17-97(R2007) EH12K

Description

- Single and multi-layer welding of various kinds of structures such as offshore structures, machinery, ship buildings, large diameter and heavy wall steel pipes.
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.08	0.35	1.70	0.024	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	550	590	30	100	100	AW

* AW : As-Welded

EF-200P×KD-42

For mild steel and 490MPa steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 77 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 42 4 AB S2Si
  AWS A5.17-97(R2007) F7A4-EM12K
  KS B ISO 14171-2014 S 42 4 AB S2Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Si
  AWS A5.17-97(R2007) EM12K

Description

- Active flux for limited pass welding of ship buildings, steel frames, structures and bridges.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- High speed on dirty plate.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.08	0.55	1.80	0.025	0.005

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -40℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 420	500~640	min. 20	≥ 47		
Example	580	630	30	60	60	AW

* AW : As-Welded

EF-100HH×KD-50

For 520MPa/540MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 72 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 3 AB S4
  AWS A5.23-2011 F8A2-EH14-G
  KS B ISO 14171-2014 S 46 3 AB S4
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.23-2011 EH14

Description

- Single and multi-layer welding of 520MPa/540MPa high tensile strength steels for structural steels, pipes, H-beams, and general fabrications.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.31	1.42	0.023	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -29℃	IV (J) -30℃	Remarks
AWS A5.23	min. 470	550~700	min. 20	≥ 27		
EN ISO 14171	min. 460	530~680	min. 20		≥ 47	
Example	570	620	26	90	90	AW

* AW : As-Welded

EF-100×KD-60

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA RS 1 81 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 Z RS SZ
  AWS A5.23-2011 F8A(P)Z-EA3-G
  KS B ISO 14171-2014 S 50 Z RS SZ
  JIS Z 3183-2012 S531-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 EA3

Description

- Single and multi-layer welding of 560MPa high tensile strength steels for H-beams, spiral pipes, machinery, bridges and structural steels.
- Bead appearanceand slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- Applicable to both AC and DC(+)
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.06	0.85	1.10	0.46	0.021	0.012

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) +20℃	IV (J) 0℃	Remarks
AWS A5.23	min. 470	550~700	min. 20			
EN ISO 14171	min. 500	560~720	min. 18			
Example	630	680	27	60	40	AW

* AW : As-Welded

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-100H×KD-60

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 72 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 3 AB SZ
  AWS A5.23-2011 F8A(P)4-EA3-G
  KS B ISO 14171-2014 S 50 3 AB SZ
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 EA3

Description

- Single and multi-layer welding of 560MPa high tensile strength steels for structural steels, pipes, ship buildings and general fabrications.
- Bead appearanceand slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.06	0.35	1.50	0.47	0.022	0.012

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 500	560~720	min. 18	≥ 47		
Example	610	660	27	90	70	AW

* AW : As-Welded

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-100H×KD-EA2

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 72 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 3 AB S2Mo
  AWS A5.23-2011 F8A(P)4-EA2-A2
  KS B ISO 14171-2014 S 50 3 AB S2Mo
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Mo
  AWS A5.23-2011 EA2

Description

- Single and multi-layer welding of 560MPa high tensile strength steels for structural steels, pipes, ship buildings and general fabrications.
- Bead appearanceand slag removal are excellent under higher welding speed with low current.
- Good resistance to porosity on rust and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.09	0.40	1.10	0.40	0.021	0.009

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 500	560~720	min. 18	≥ 47		
Example	580	620	27	90	70	AW

* AW : As-Welded

EF-200V×KD-60

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 5 CS SZ
  AWS A5.23-2011 F8A(P)6-EA3-G
  KS B ISO 14171-2014 S 50 5 CS SZ
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 EA3

Description

- Single and multi-layer welding of 560MPa high tensile strength steels for ship buildings, structural steels, bridges and general fabrications.
- Neutral flux for multi-pass welding.
- Excellent impact tougheness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.09	0.13	1.75	0.48	0.022	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 500	560~720	min. 18	≥ 47		
Example	630	670	26	80	80	AW

* AW : As-Welded

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200V×KD-EA2

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 5 CS S2Mo
  AWS A5.23-2011 F8A(P)6-EA2-A2
  KS B ISO 14171-2014 S 46 5 CS S2Mo
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Mo
  AWS A5.23-2011 EA2

Description

- Single and multi-layer welding of 560MPa high tensile strength steels for large diameter and heavy wall steel pipe, structural steels, bridges and general fabrications.
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.09	0.14	1.10	0.41	0.022	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	550	600	29	100	100	AW

* AW : As-Welded

EF-200V×KD-Ni1K

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 4 CS SZ
  AWS A5.23-2011 F8A(P)4-ENi1K-Ni1
  KS B ISO 14171-2014 S 50 4 CS SZ
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 ENi1K

Description

- Single and multi-layer welding of machinery, pressure vessels, pipes, ship buildings and structural steels.
- Excellent impact tougheness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350℃ for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni
0.08	0.60	1.33	0.014	0.003	0.78

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -40℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 500	560~720	min. 18	≥ 47		
Example	590	680	24	83	83	PWHT*

* PWHT : Post Weld Heat Treatment (620°Cx1Hr.)

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200P×KD-EA2

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 77 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 4 AB S2Mo
  AWS A5.23-2011 F8A4-EA2-A2
  KS B ISO 14171-2014 S 46 4 AB S2Mo
  JIS Z 3183-2012 S582-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Mo
  AWS A5.23-2011 EA2

Description

- Active flux for limited pass welding of ship buildings, steel frames, structures and bridges.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- High speed on dirty plate.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Mo
0.07	0.28	1.67	0.018	0.006	0.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -40℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	620	680	28	70	70	AW

* AW : As-Welded

EF-200V×KD-100

For 690MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 26304-A:2017 S 62 4 CS SZ
  EN ISO 26304-B:2017 S 69A 4 CS SU N3M2
  AWS A5.23-2011 F10A(P)4-EM2-G
  KS B ISO 26304-A:2016 S 62 4 CS SZ
  KS B ISO 26304-B:2016 S 69A 4 CS SU N3M2
  JIS Z 3183-2012 S704-H2
- **SAW solid wire**
  EN ISO 26304-A:2017 SZ
  EN ISO 26304-B:2017 SU N3M2
  AWS A5.23-2011 EM2

Description

- Single and multi-layer welding of 690MPa high tensile strength steels for pressure vessels, bridges, machinery and structural steels.
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Mo
0.06	0.29	1.40	1.70	0.35

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -30℃	IV (J) -40℃	Remarks
AWS A5.23	min. 610	690~830	min. 16		≥ 27	
EN ISO 26304-A	min. 620	700~890	min. 18		≥ 47	
EN ISO 26304-B	min. 550	690~890	min. 14		≥ 27	
Example	670	740	26	90	70	AW

* AW : As-Welded

EF-200UV×KD-120

For 760MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA FB 1 55 AC H5
- **Flux/ Wire-combination**
  EN ISO 26304-A:2017 S 69 5 FB SZ H5
  EN ISO 26304-B:2017 S 78A 5 FB SUG H5
  AWS A5.23-2011 F11A6-EG-G
  KS B ISO 26304-A:2016 S 69 5 FB SZ H5
  KS B ISO 26304-B:2016 S 78A 5 FB SUG H5
  JIS Z 3183-2012 S804-H2
- **SAW solid wire**
  EN ISO 26304-A:2017 SZ
  EN ISO 26304-B:2017 SUG
  AWS A5.23-2011 EG

Description

- It is designed for welding of 800MPa high tensile steel with outstanding mechanical properties.
- Suitable for single and multi-layer welding of heavy duty structures.
- Excellent impact value at low temperature down to -60°C.
- DCEP current is only applicable.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Mo
0.05	0.20	1.85	2.50	0.67

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -52℃	Remarks
AWS A5.23	min. 680	760~900	min. 15		≥ 27	
EN ISO 26304-A	min. 690	770~940	min. 17	≥ 47		
EN ISO 26304-B	min. 670	780~980	min. 13	≥ 27		
Example	730	825	21		85	AW

* AW : As-Welded

EF-260×KD-120

For 820MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA FB 1 55 AC H5
- **Flux/ Wire-combination**
  EN ISO 26304-A:2017 S 69 5 FB SZ H5
  EN ISO 26304-B:2017 SU 83A 5 FB SUG H5
  AWS A5.23-2011 F12A6-EG-G
  KS B ISO 26304-A:2016 S 69 5 FB SZ H5
  KS B ISO 26304-B:2016 S 83A 5 FB SUG H5
  JIS Z 3183-2012 S804-H2
- **SAW solid wire**
  EN ISO 26304-A:2017 SZ
  EN ISO 26304-B:2017 SUG
  AWS A5.23-2011 EG

Description

- It is designed for welding of 820MPa high tensile steel with outstanding mechanical properties.
- Suitable for single and multi-layer welding of heavy duty structures.
- Neutral flux for multi-pass welding.
- Excellent impact value at low temperature down to -60°C.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Mo
0.05	0.20	1.80	2.50	0.67

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -51℃	Remarks
AWS A5.23	min. 740	830~970	min. 14		≥ 27	
EN ISO 26304-A	min. 690	770~940	min. 17	≥ 47		
EN ISO 26304-B	min. 740	830~1030	min. 12	≥ 27		
Example	852	885	24	120	117	AW

* AW : As-Welded

EF-200LT×KD-50

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S4
  AWS A5.17-97(R2007) F7A(P)8-EH14
  KS B ISO 14171-2014 S 46 6 CS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of structures for low temperature service (offshore structures, steel pipes, chemical vessels and other structures in cold regions)
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature down to -60°C and CTOD.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ti	B
0.08	0.17	1.55	0.02	0.004

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	540	580	29	105	100	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, KR, NK, RS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200LT×KD-55

For low temperature service steel (530MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S4
  AWS A5.23-2011 F8A(P)8-EH14-G
  KS B ISO 14171-2014 S 46 6 CS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.23-2011 EH14

Description

- Single and multi-layer welding of structures for low temperature service.
  (offshore structures, steel pipes, chemical vessels and other structures in cold regions)
- Neutral flux for multi-pass welding.
- Excellent impact toughness at low temperature down to -60°C and CTOD.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ti	B
0.08	0.17	1.55	0.02	0.004

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	533	615	29	60	60	AW

* AW : As-Welded

Approvals

ABS, BV, DNV

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200LT Plus×KD-50

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S4
  AWS A5.17-97(R2007) F7A(P)8-EH14
  KS B ISO 14171-2014 S 46 6 CS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of various kinds of structures such as offshore structures, pressure vessels and ship buildings.
- Excellent impact toughness at low temperature down to -60°C.
- Outstanding welding characteristic and bead profile.
- Neutral flux for multi-pass welding.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ti	B
0.09	0.15	1.54	0.02	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	540	580	30	100	100	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, NK

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200LT Plus×KD-EH12K

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S3Si
  AWS A5.17-97(R2007) F7A(P)8-EH12K
  KS B ISO 14171-2014 S 46 6 CS S3Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S3Si
  AWS A5.17-97(R2007) EH12K

Description

- Single and multi-layer welding of various kinds of structures such as offshore structures, pressure vessels, large diameter and heavy wall steel pipe and ship buildings.
- Excellent impact toughness at low temperature down to -60°C.
- Outstanding welding characteristic and bead profile.
- Neutral flux for multi-pass welding.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ti	B
0.08	0.35	1.51	0.02	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	520	570	30	100	100	AW

* AW : As-Welded

EF-200UV×KD-EH12K

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA FB 1 55 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 FB S3Si
  AWS A5.17-97(R2007) F7A(P)8-EH12K
  KS B ISO 14171-2014 S 46 6 FB S3Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S3Si
  AWS A5.17-97(R2007) EH12K

Description

- Single and multi-layer welding of offshore structures, ship buildings, structural steels, pressure vessels and general fabrications. (Neutral and high-basic flux)
- It is used for the welding of low temperature service steels required high integrity welds with low temperature impact.
- Good bead appearance, slag removal and crack resistibility.
- Good resistance to porosity on rust, scales, oil and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.31	1.60	0.016	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	520	580	30	110	110	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200UV×KD-42

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA FB 1 55 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 42 6 FB S2Si
  AWS A5.17-97(R2007) F7A8-EM12K
  KS B ISO 14171-2014 S 42 6 FB S2Si
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S2Si
  AWS A5.17-97(R2007) EM12K

Description

- Single and multi-layer welding of offshore structures, ship buildings, structural steels, pressure vessels and general fabrications. (Neutral and high-basic flux)
- It is used for the welding of low temperature service steels required high integrity welds with low temperature impact.
- Good bead appearance, slag removal and crack resistibility.
- Good resistance to porosity on rust, scales, oil and primer.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.07	0.30	1.00	0.015	0.010

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 420	500~640	min. 20	≥ 47		
Example	460	540	31	110	110	AW

* AW : As-Welded

EF-200CT×KD-50

For low temperature service steel (490MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 6 CS S4
  AWS A5.17-97(R2007) F7A(P)8-EH14
  KS B ISO 14171-2014 S 46 6 CS S4
  JIS Z 3183-2012 S502-H
- **SAW solid wire**
  EN ISO 14171-2016 S4
  AWS A5.17-97(R2007) EH14

Description

- Single and multi-layer welding of various kinds of structures such as offshore structures, pressure vessels and ship buildings.
- Excellent impact toughness at low temperature down to -60°C.
- Outstanding welding characteristic and bead profile.
- Neutral flux for multi-pass welding.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S
0.09	0.20	1.57	0.014	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -60℃	IV (J) -62℃	Remarks
AWS A5.17	min. 400	480~660	min. 22		≥ 27	
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	530	570	30	150	150	AW

* AW : As-Welded

EF-200LT×KD-Ni3

For 560MPa high tensile strength steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 46 7 CS SZ
  AWS A5.23-2011 F8A10-ENi3-Ni3
  F7P10-ENi3-Ni3
  KS B ISO 14171-2014 S 46 7 CS SZ
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 ENi3

Description

- Single and multi-layer welding of offshore structures, pressure vessels, heavy wall steel pipes.
- Excellent impact tougheness at low temperature.
- The Weld Metal contains about 3% Ni.
- Bead appearance and slag removal are excellent.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Ni
0.06	0.26	1.04	0.016	0.007	3.46

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -70℃	IV (J) -72℃	Remarks
AWS A5.23	min. 470	550~700	min. 20		≥ 27	AW
AWS A5.23	min. 400	480~660	min. 22		≥ 27	PWHT*
EN ISO 14171	min. 460	530~680	min. 20	≥ 47		
Example	610	680	24	80	80	AW
Example	600	664	26	51	51	PWHT*

* PWHT : Post Weld Heat Treatment (620°Cx1Hr.)

EF-200LT×KD-60

For low temperature service steel (650MPa)

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC H5
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 5 CS SZ
  AWS A5.23-2011 F9A8-EA3-G
  KS B ISO 14171-2014 S 50 5 CS SZ
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 EA3

Description

- Single and multi-layer welding of 650MPa high tensile strength steels for low temperature service. (offshore structures, steel pipes, chemical vessels and other structures in cold regions)
- Excellent impact toughness at low temperature down to -60°C.
- Neutral flux for multi-pass welding.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	Ti	B
0.07	0.14	1.50	0.46	0.02	0.004

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -50℃	IV (J) -62℃	Remarks
AWS A5.23	min. 540	620~760	min. 17		≥ 27	
EN ISO 14171	min. 500	560~720	min. 18	≥ 47		
Example	590	650	26	70	60	AW

* AW : As-Welded

Approvals

ABS, BV, DNV, LR, RS, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200H×KD-60

For 0.5%Mo heat resistant steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 14171-2016 S 50 4 CS SZ
  AWS A5.23-2011 F8P0-EA3-A3
  KS B ISO 14171-2014 S 50 4 CS SZ
  JIS Z 3183-2012 S584-H
- **SAW solid wire**
  EN ISO 14171-2016 SZ
  AWS A5.23-2011 EA3

Description

- Single and multi-layer welding of 0.5%Mo steel for pressure vessels, steam pipes, boilers., etc.
- Neutral flux for multi-pass welding.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Mo	P	S
0.08	0.15	1.60	0.50	0.024	0.008

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -18℃	IV (J) -40℃	Remarks
AWS A5.23	min. 470	550~700	min. 20	≥ 27		
EN ISO 14171	min. 500	560~720	min. 18		≥ 47	
Example	590	660	27	140	80	AW
	570	640	30	150	90	PWHT

* AW : As-Welded, PWHT : Post Weld Heat Treatment (620°Cx1Hr.)

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

EF-200H×KD-B2

For 1.25%Cr-0.5%Mo heat resistant steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 24598-A:2012 S CrMo1 CS
  EN ISO 24598-B:2012 S 55 2 CS SU 1CM
  AWS A5.23-2011 F8P0-EB2-B2
  KS B ISO 24598-A:2013 S CrMo1 CS
  KS B ISO 24598-B:2013 S 55 2 CS SU 1CM
  JIS Z 3183-2012 S572-1CM
- **SAW solid wire**
  EN ISO 24598-A:2012 S CrMo1
  EN ISO 24598-B:2012 SU 1CM
  AWS A5.23-2011 EB2

Description

- Single and multi-layer welding of 1.25%Cr-0.5%Mo steel for oil refining equipment, boiler drums, main steam tubes, chemical engineering apparatus., etc.
- Neutral flux for multi-pass welding.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Mo
0.10	0.18	0.90	1.11	0.48

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -18℃	IV (J) -20℃	Remarks
AWS A5.23	min. 470	550~700	min. 20	≥ 27		
EN ISO 24598-B	min. 470	560~700	min. 18		≥ 27	
Example	590	650	27	60	60	PWHT

* PWHT : Post Weld Heat Treatment (690°Cx1Hr.)

EF-200H×KD-B3

For 2.25%Cr-1%Mo heat resistant steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 1 53 AC
- **Flux/ Wire-combination**
  EN ISO 24598-A:2012 S CrMo2 CS
  EN ISO 24598-B:2012 S 62 2 CS SU 2C1M
  AWS A5.23-2011 F9P0-EB3-B3
  KS B ISO 24598-A:2013 S CrMo2 CS
  KS B ISO 24598-B:2013 S 62 2 CS SU 2C1M
  JIS Z 3183-2012 S642-2CM
- **SAW solid wire**
  EN ISO 24598-A:2012 S CrMo2
  EN ISO 24598-B:2012 SU 2C1M
  AWS A5.23-2011 EB3

Description

- Single and multi-layer welding of 2.25%Cr-1%Mo steel for pressure vessels, oil refining industries, steam pipes of boiler., etc.
- Neutral flux for multi-pass welding.
- Excellent impact toughness and crack resistibility.
- Outstanding welding characteristics and bead profile.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Mo
0.08	0.27	0.90	2.26	0.92

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -18℃	IV (J) -20℃	Remarks
AWS A5.23	min. 540	620~760	min. 17	≥ 27		
EN ISO 24598-B	min. 540	620~760	min. 15		≥ 27	
Example	610	700	23	50	50	PWHT

* PWHT : Post Weld Heat Treatment (690°Cx1Hr.)

EF-200HC×KD-B9

For 9%Cr-1%Mo-Nb-V heat resistant steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA FB 2 55 DC
- **Flux/ Wire-combination**
  EN ISO 24598-A:2012 S CrMo91 FB
  EN ISO 24598-B:2012 S 69 Z FB SU9C1MV
  AWS A5.23-2011 F10PZ-EB91-B91
  KS B ISO 24598-A:2013 S CrMo91 FB
  KS B ISO 24598-B:2013 S 69 Z FB SU9C1MV
- **SAW solid wire**
  EN ISO 24598-A:2012 S CrMo91
  EN ISO 24598-B:2012 SU 9C1MV
  AWS A5.23-2011 EB91

Description

- It is designed for welding of 9%Cr-1%Mo-Nb-V(T91/P91) steel used in oil refining industries, high pressure vessels., etc.
- For joining and surfacing applications of creep resistant CrMo steels such as T91/P92.
- It has easy slag removal and good weld soundness.
- Redry the flux at 250~350℃ for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Mo	Nb	V	Ni
0.10	0.20	0.80	8.10	0.90	0.05	0.18	0.40

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) +20℃	Remarks
AWS A5.23	min. 610	690~830	min. 16		
EN ISO 24598-B	min. 415	min. 585	min. 17		
Example	700	800	20	30	PWHT

* PWHT : Post Weld Heat Treatment (760℃x2Hr.)

EF-100SB×KD-B2/KD-B3

For heat resistant steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AB 1 66 AC
- **Flux/ Wire-combination**

EN ISO 24598-A:2012	S CrMo1 AB (KD-B2)
	S CrMo2 AB (KD-B3)
EN ISO 24598-B:2012	S 55 2 AB SU 1CM (KD-B2)
	S 62 0 AB SU 2C1M (KD-B3)
AWS A5.23-2011	F8PZ-EB2-B2 (KD-B2)
	F9PZ-EB3-B3 (KD-B3)
KS B ISO 24598-A	S CrMo1 AB (KD-B2)
	S CrMo2 AB (KD-B3)
KS B ISO 24598-B	S 55 2 AB SU 1CM (KD-B2)
	S 62 0 AB SU 2C1M (KD-B3)

- **SAW solid wire**

EN ISO 24598-A:2012	S CrMo1 (KD-B2)
	S CrMo2 (KD-B3)
EN ISO 24598-B:2012	SU 1CM (KD-B2)
	SU 2C1M (KD-B3)
AWS A5.23-2011	EB2 / EB3

Description

- Single or multi-layer welding of various kinds structure such as 1.25%-0.5%Mo and 2.25%Cr-1%Mo heat resistant steels used for steam pipes of boiler, equipment for oil refining industries., etc.
- Bead appearance and slag removal are excellent under higher welding speed with low current.
- Good resistance to rust, scale, oil and dirt on th surface to be welded.
- Excellent X-ray characteristics and resistance to porosity.
- Applicable to both AC and DC(+).
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

Wire	C	Si	Mn	Cr	Mo
KD-B2	0.06	0.25	0.90	1.10	0.50
KD-B3	0.06	0.30	0.90	2.10	0.95

Typical mechanical properties of all-weld metal

Wire	Y.S (MPa)	T.S (MPa)	El. (%)	Charpy V-notch Temp. (℃)	Vaule (J)	AWS Classification
KD-B2	550	600	27	0	80	A5.23 : F8PZ-EB2-B2*
KD-B3	610	690	23	0	50	A5.23 : F9PZ-EB3-B3*

* PWHT : Post Weld Heat Treatment (690°Cx1Hr.)

EF-300N

For stainless steel and duplex stainless steel

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AF 2 DC

Description

- Agglomerated basic welding flux for welding stainless high alloyed CrNi(Mo) steels.
- Excellent impact value at low temperature down to -196°C.
- The weld metals show good mechanical properties.
- Excellent weldability such as stable arc and easy slag removal.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

Wire	C	Si	Mn	Cr	Ni	Mo	Nb	N
M-308L	0.02	0.6	1.5	19.4	9.6			
M-309L	0.02	0.5	1.6	23.0	13.5			
M-316L	0.02	0.6	1.3	18.6	11.6	2.4		
M-347	0.05	0.4	1.4	19.0	9.3		0.6	
M-2209	0.02	0.5	1.2	22.5	8.5	3.1		0.5
M-2594	0.03	0.5	0.6	24.2	9.0	3.8		0.2

Typical mechanical properties of all-weld metal

Wire	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -40℃	IV (J) -60℃	IV (J) -196℃	Remarks
M-308L	390	560	42		90	60	AW
M-309L	430	580	36		100	80	AW
M-316L	410	570	39		100	60	AW
M-347	450	610	36		80	45	AW
M-2209	650	800	35		70		AW
M-2594	650	860	26	55			AW

* AW : As-Welded

EF-600N×KW-M625

For nickel alloy

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA AF 2 DC
- **SAW solid wire**
  EN ISO 18274-2005 S Ni 6625
  AWS A5.14-2011 ERNiCrMo-3

Description

- Agglomerated basic welding flux for Inconel 625 and dissimilar welding of low-alloyed steels and Nickel-alloyed steels.
- Excellent impact value at low temperature down to -196°C.
- The weld metals show good mechanical properties and corrosion resistance.
- Excellent weldability such as stable arc and easy slag removal.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.
- Excessive flux height may bring out poor bead appearance.

Typical chemical composition of all-weld metal (%)

Wire	C	Si	Mn	Cr	Ni	Mo	Nb
KW-M625	0.02	0.2	0.2	22.0	Rem	8.3	3.3

Typical mechanical properties of all-weld metal

Wire	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) -196℃	Remarks
KW-M625	560	820	42	85	AW

* AW : As-Welded

Packages

- **Wire**

Dia. (mm)	Type	Weight (kg)
2.0	Coil	25
2.4	Coil	25
3.2	Coil	25

- **Flux**

Mesh size	Type	Weight (kg)
12x60	Can	20

EF-300ST/EF-300STK

For Strip Cladding Applications (SAW)

Description

- This Flux is an agglomerated flux for submerged arc strip cladding.
- It is recommended for cladding with the Cr, CrNi and CrNiMo types of stainless strip. (Combination stainless strip : KQ-308L, KQ-309L)
- Slag removal and overlapping with this flux are excellent.
- Applications : chemical/petrochemical and offshore industry(pressure vessels, heat exchangers, ...), nuclear power industry(reactor vessels, ...), chemical reactors and flanges in pulp and paper industry., etc.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux..

Basicity index

1.1

Current condition

DC+

Typical chemical composition of all-weld metal (%)

Strip/Flux		Chemical Composition (%)						
Layer1	Layer2	C	Si	Mn	Cr	Ni	Mo	Nb
KQ-309L/ EF-300STK	KQ-308L/ EF-300ST	0.03	0.8	1.6	19.5	10.2		

Packages

- **Strip**

Width (mm)	Thickness (mm)	Type	Weight (kg)
25.4	0.5	Coil	25
50.8	0.5	Coil	50
60	0.5	Coil	50
90	0.5	Coil	90

- **Flux**

Mesh size	Type	Weight (kg)
12x60	Can	20

EF-300ESW

For Strip Cladding Applications (ESW)

Description

- EF-300ESW is a high-basic agglomerated flux for electrosalg strip cladding.
- It is recommended for cladding with the Cr, CrNi and CrNiMo types of stainless strip. (Combination stainless strip : KQ-308L, KQ-309L)
- Excellent bead appearance and slag removal.
- The weld bead has high hot cracking resistance.
- Applications : chemical/petrochemical and offshore industry(pressure vessels, heat exchangers, ...), nuclear power industry(reactor vessels, ...), chemical reactors and flanges in pulp and paper industry., etc.
- Redry the flux at 250~350°C for 60 minutes before use.
- Add new flux periodically when continuously reusing the flux.

Basicity index

3.7

Current condition

DC+

Typical chemical composition of all-weld metal (%)

Strip		C	Si	Mn	Cr	Ni	Mo	Nb
KQ-309L	1st layer	0.03	0.5	1.3	19.2	10.6		

Packages

- **Strip**

Width (mm)	Thickness (mm)	Type	Weight (kg)
25.4	0.5	Coil	25
50.8	0.5	Coil	50
60	0.5	Coil	50
90	0.5	Coil	90

- **Flux**

Mesh size	Type	Weight (kg)
12x60	Can	20

EF-200F

For hardfacing

Classifications

- **Sub-arc flux**
  EN ISO 14174-2012 SA CS 2 DC

Description

- EF-200F is a basic and agglomerated flux used for hardfacing in combination with composite wires for hardfacning such as K-13CrHT, K-15CrHT.
- Typical applications : steel mills concast rolls, valve seats and components subject to wear, fatigue and corrosion at high temperature.
- Outstanding slag release properies and bead profile.
- Redry the flux at 250~350°C for 60 minutes before use.
- The flux is suitable for single, multi-pass and oscillated welding, using single or twin-wire processes.
- When 1 Layer welding with K-15CrHT & Other Layer welding with K-13CrHT, Hardness of weld metal is HRC 40~48.
- Hardness of weld metal may be changed according to base metal, layer height, number of weld pass, welding condition., etc.

Typical chemical composition of all-weld metal (%)

Wire	C	Si	Mn	Cr	Ni	Mo
K-13CrHT	0.12	0.4	1.2	13.0	2.7	1.0
K-15CrHT	0.06	0.4	1.1	15.0	2.8	1.0

Recommended welding parameters

Dia. (mm)	Amp. (A)	Volt. (V)
3.2	400~700	26~36
4.0	450~900	28~38

Submerged Arc Wires

Brand name	AWS Classification	Typical chemical composition (wt.%)							
		C	Si	Mn	Cr	Ni	Mo	Nb	N
KD-40	A5.17 : EL8	0.04	0.02	0.48					
KD-41	A5.17 : EL12	0.06	0.02	0.41					
KD-42	A5.17 : EM12K	0.06	0.30	1.10					
KD-43	A5.17 : EM13K	0.07	0.66	1.17					
KD-50	A5.17 : EH14	0.11	0.02	1.95					
KD-EH12K	A5.17 : EH12K	0.08	0.35	1.75					
KD-60	A5.23 : EA3	0.08	0.02	1.92			0.55		
KD-Ni1K	A5.23 : ENi1K	0.11	0.63	1.11		0.89			
KD-Ni3	A5.23 : ENi3	0.07	0.10	1.00		3.60			
KD-EA2	A5.23 : EA2	0.10	0.11	1.05			0.52		
KD-B2	A5.23 : EB2	0.11	0.18	0.61	1.41		0.54		
KD-B3	A5.23 : EB3	0.10	0.21	0.56	2.52		1.01		
KD-B9	A5.23 : EB91	0.11	0.31	0.75	9.06	0.42	0.94	0.04	0.04
KD-100	A5.23 : EM2	0.05	0.27	1.50	0.26	1.90	0.34		
KD-120	A5.23 : EG	0.04	0.23	1.90		2.80	0.73		
M-308	A5.9 : ER308	0.04	0.5	1.6	19.9	9.6			
M-308L	A5.9 : ER308L	0.01	0.5	1.8	19.6	9.6			
M-309	A5.9 : ER309	0.05	0.4	1.6	23.1	13.3			
M-309L	A5.9 : ER309L	0.01	0.5	1.6	23.1	13.8			
M-316	A5.9 : ER316	0.04	0.4	1.6	19.2	12.2	2.3		
M-316L	A5.9 : ER316L	0.02	0.5	1.6	18.8	11.8	2.5		
M-347	A5.9 : ER347	0.05	0.4	1.6	19.0	9.0		0.7	
M-317L	A5.9 : ER317L	0.01	0.4	1.6	19.1	13.5	3.3		
M-309LMo	A5.9 : ER309LMo	0.01	0.5	1.5	23.0	14.6	2.6		
M-2209	A5.9 : ER2209	0.01	0.4	1.7	22.7	8.7	3.2		0.16
M-2594	A5.9 : ER2594	0.02	0.4	0.7	24.9	9.2	4.0		0.23
KQ-308L	A5.9 : EQ308L	0.01	0.4	1.7	19.9	10.2			
KQ-309L	A5.9 : EQ309L	0.01	0.4	2.0	23.7	13.3			

MEMO

Oxyfuel Gas Welding Consumables

FOR CARBON STEEL

T-40

For mild steel

Classifications

AWS A5.2:2005	R45	JIS Z 3201:2001	GA46
KS D 7005:2005	GA46		

Description

- Suitable for application of oxy-acetylene welding for mild steel.
- Excellent meltability and deposition rate.
- Sound welds without non-metallic inclusion.

Typical chemical composition of wire (%)

C	Si	Mn	P	S
0.04	0.02	0.45	0.013	0.010

Typical mechanical properties of all-weld metal

	T.S. (MPa)	El. (%)	Remarks
AWS A5.2			
Example	450	20	SR
	500	17	NSR

* SR : Stress Relieved
* NSR : Not Stress Relieved

Nonferrous Metal Welding Consumables

COVERED ELECTRODES

TIG WELDING CONSUMABLES

MIG WELDING CONSUMABLES

KNCF-2

For nickel alloy (Inconel 600, 601)

Classifications

EN ISO 14172:2015	E Ni 6092	KS B ISO 14172:2015	E Ni 6133
AWS A5.11:2010	ENiCrFe-2	JIS Z 3224:2010	E Ni 6133

Description

- Covering is low hydrogen type for welding of Ni-Cr-Fe alloy steel (Inconel 600, 601) or different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
- KNCF-2 makes safety welding with good weldability and usability.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Mo	Nb+Ta
0.02	0.37	1.69	0.011	0.005	7.94	Rem.	14.42	0.89	1.45

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 550	min. 30	
EN ISO 14172	min. 360	min. 550	min. 27	
Example	490	620	43	AW

* AW : As-Welded

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	80~120	120~150	150~180
(A)	V·OH	50~70	70~100	100~140	

KNCF-3

For nickel alloy (Inconel 600, 601)

Classifications

EN ISO 14172:2015	E Ni 6182	KS B ISO 14172:2015	E Ni 6182
AWS A5.11:2010	ENiCrFe-3	JIS Z 3224:2010	E Ni 6182

Description

- Covering is low hydrogen type for welding of Ni-Cr-Fe alloy steel (Inconel 600, 601) or different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
- KNCF-3 makes safety welding with good weldability and usability.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Ti	Nb+Ta
0.06	0.42	7.95	0.010	0.007	3.9	Rem.	16.2	0.02	1.9

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 550	min. 30	
EN ISO 14172	min. 360	min. 550	min. 27	
Example	500	650	42	AW

* AW : As-Welded

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
(A)	V·OH	55~70	80~100	100~140	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-A82

For nickel alloy (Inconel 600, 601)

Classifications

EN ISO 14172:2015	E Ni 6182	KS B ISO 14172:2015	E Ni 6182
AWS A5.11:2010	ENiCrFe-3	JIS Z 3224:2010	E Ni 6182

Description

- Covering is low hydrogen type for welding of Ni-Cr-Fe alloy steel (Inconel 600, 601) or different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
- KNCF-A82 makes safety welding with good weldability and usability.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Ti	Nb+Ta
0.02	0.57	5.57	0.010	0.004	7.32	Rem.	15.27	0.12	2.16

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 550	min. 30	
EN ISO 14172	min. 360	min. 550	min. 27	
Example	510	660	48	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	300	350	350
Amp.	F	60~80	80~120	120~150	150~180
(A)	V·OH	50~70	70~100	100~140	

KW-A82M

For Cement industry

Classifications

EN ISO 14172:2015	E Ni 6082	KS B ISO 14172:2015	E Ni 6082
AWS A5.11:2010	ENiCrFe-3 (mod.)	JIS Z 3224:2010	E Ni 6082

Description

- Covering is low hydrogen type for welding of Ni-Cr-Fe alloy steel or different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Ti	Nb+Ta
0.04	0.34	4.24	0.003	0.010	2.96	Rem.	20.20	1.73	1.95

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 14172	min. 360	min. 600	min. 22	
Example	430	690	47	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	300	350	350
Amp.	F	60~80	80~120	120~150	150~180
(A)	V·OH	50~70	70~100	100~140	

KW-A690

For nickel alloy (Inconel 690)

Classifications

EN ISO 14172:2015	E Ni 6152	KS B ISO 14172:2015	E Ni 6152
AWS A5.11:2010	ENiCrFe-7	JIS Z 3224:2010	E Ni 6152

Description

- Covering is low hydrogen type for welding of Ni-Cr-Fe alloy steel (Inconel 690) or different materials, such as Inconels, Inconel and low alloy steels, stainless steels and low alloy steels.
- Easy slag removal and stable arc.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Ti	Nb+Ta
0.05	0.52	1.45	0.008	0.004	10.1	Rem.	29.5	0.03	1.2

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 550	min. 30	
EN ISO 14172	min. 360	min. 550	min. 27	
Example	490	640	44	AW

* AW : As-Welded

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
(A)	V·OH	55~70	80~100	100~140	

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-A625

For nickel alloy (Inconel 625)

Classifications

EN ISO 14172:2015	E Ni 6625	KS B ISO 14172:2015	E Ni 6625
AWS A5.11:2010	ENiCrMo-3	JIS Z 3224:2010	E Ni 6625

Description

- Covering is lime titania type for welding of Inconel 625, Incoloy 825 and other molybdenum containing stainless steels. The weld metal has high strength at room and elevated temper atures and has exceptional corrosion resistance, including resistance to pitting, crevice corrosion, etc.
- The electrodes provide excellent operability for groove and fillet welding in the downhand position.
- Easy slag removal, low spatter generation and stable arc characteristics.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Mo	Nb+Ta
0.03	0.22	0.54	0.008	0.004	1.64	Rem.	21.9	8.6	3.8

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 760	min. 30	
EN ISO 14172	min. 420	min. 760	min. 27	
Example	520	770	40	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	350	350	350
Amp.	F	60~90	90~120	140~180	170~210
(A)	V·OH	60~90	70~100	120~160	130~170

Approvals

DNV, CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-A276

For nickel alloy (Hastelloy C-276)

Classifications

EN ISO 14172:2015	E Ni 6276	KS B ISO 14172:2015	E Ni 6276
AWS A5.11:2010	ENiCrMo-4	JIS Z 3224:2010	E Ni 6276

Description

- Covering is lime titania type for welding of Hastelloy C-276.
- The electrodes provide excellent operability for groove and fillet welding in the downhand positon.
- Easy slag removal, low spatter generation and stable arc characteristics.
- Redry the electrode at 250~350°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Ni	Cr	Mo	W
0.01	0.08	0.69	0.008	0.002	6.44	Rem.	16.33	16.30	3.35

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 690	min. 25	
EN ISO 14172	min. 400	min. 690	min. 22	
Example	510	750	45	AW

* AW : As-Welded

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	80~120	120~150	150~180
(A)	V·OH	50~70	70~100	100~140	

KW-A617

For Inconel 617

Classifications

EN ISO 14172:2015	E Ni 6617	KS B ISO 14172:2015	E Ni 6617
AWS A5.11:2010	ENiCrCoMo-1 (mod.)	JIS Z 3224:2010	E Ni 6617

Description

- Covering is low hydrogen type for joining and repairing of Ni-Cr-Co-Mo alloy steel.
- Excellent heat resistance, corrosion resistance and mechanical quality of all weld metal.
- Satisfactory bead appearance and slag removal.
- Redry the electrode at 300~400°C for 1~2 hours prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Co	Ni	Cr	Mo	Fe
0.07	0.77	0.34	0.005	0.003	10.99	Rem.	21.77	8.55	0.32

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
EN ISO 14172	min. 400	min. 620	min. 22	
Example	510	760	35	AW

* AW : As-Welded

Sizes available and recommended currents (DC+)

Dia.	(mm)	2.6	3.2	4.0	5.0
Length	(mm)	300	300	350	350
Amp.	F	60~80	80~120	120~150	150~180
(A)	V·OH	50~70	70~100	100~140	

KW-A60

For nickel alloy (Monel 400, R-405, K-500)

Classifications

EN ISO 14172:2015	E Ni 4060	KS B ISO 14172:2015	E Ni 4060
AWS A5.11:2010	ENiCu-7	JIS Z 3224:2010	E Ni 4060

Description

- Welding of Monel 400. Welding or hardfacing for different materials, such as low alloy steel, cabon steel and Cu-Ni alloy.
- Easy slag removal, low spatter generation.
- Redry the electrode at 250~300°C for 30~60 minutes prior to use.

Welding positions

Typical chemical composition of all-weld metal (%)

C	Si	Mn	P	S	Fe	Cu	Ni	Al	Ti
0.04	1.12	3.50	0.008	0.004	2.1	Rem.	65.2	0.03	0.44

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.11		min. 480	min. 30	
EN ISO 14172	min. 200	min. 480	min. 27	
Example	310	530	43	AW

* AW : As-Welded

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
(A)	V·OH	55~75	80~100		

Approvals

CE

* Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Nickel alloy TIG consumables

KW-T61

Nickel 200, 201

Classifications

EN ISO 18274:2010	S Ni 2061 (NiTi3)	KS B ISO 18274:2014	S Ni 2061 (NiTi3)
AWS A5.14:2011	ERNi-1 (UNS N02061)	JIS Z 3334:2011	S Ni 2061 (NiTi3)

Description

- TIG consumable for pure nickel, nickel alloys and repair welding of cast iron.
- It can be used for dissimilar welding of nickel, steels, monel, cupronickel and stainless steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Ti
0.01	0.27	0.40	95.80	3.19

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		380	
Example		450	29

Approvals

CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Nickel alloy TIG consumables

KW-T82

Inconel 600, 601, 690/ Incoloy 800, 800HT

Classifications

EN ISO 18274:2010	S Ni 6082 (NiCr20Mn3Nb)	KS B ISO 18274:2014	S Ni 6082 (NiCr20Mn3Nb)
AWS A5.14:2011	ERNiCr-3 (UNS N06082)	JIS Z 3334:2011	S Ni 6082 (NiCr20Mn3Nb)

Description

- TIG consumable for Inconel 600, Incoloy 800(HT). (ASTM B 163, B166, B167 or UNS N06082)
- It can be used for dissimilar welding of Inconel 600 with steels or stainless steels.
- The weld metal has high strength and good corrosion resistance at elevated temperature.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Fe	Nb+Ta
0.02	0.11	3.09	20.32	71.90	1.04	2.44

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		550	
Example		640	36

Approvals

ABS, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-T625

Inconel 625 / Incoloy 825

Classifications

EN ISO 18274:2010	S Ni 6625 (NiCr22Mo9Nb)	KS B ISO 18274:2014	S Ni 6625 (NiCr22Mo9Nb)
AWS A5.14:2011	ERNiCrMo-3	JIS Z 3334:2011	S Ni 6625 (NiCr22Mo9Nb)

Description

- TIG consumable for Inconel 625, Incoloy 825.
- It can be used for surfacing of 9% Ni steels and dissimilar welding of Inconel 625 to stainless steels.
- The weld metal has high strength and good corrosion resistance at broad temperature.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Nb
0.01	0.08	0.03	22.24	63.80	8.67	3.36

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		760	
Example	506	773	54

Approvals

ABS, BV, DNV, LR, KR, NK, CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-T276

Hastelloy C-276

Classifications

EN ISO 18274:2010	S Ni 6276 (NiCr15Mo16Fe6W4)	KS B ISO 18274:2014	S Ni 6276 (NiCr15Mo16Fe6W4)
AWS A5.14:2011	ERNiCrMo-4	JIS Z 3334:2011	S Ni 6276 (NiCr15Mo16Fe6W4)

Description

- TIG consumable for Hastelloy C276.
- It can be used for surfacing steels and dissimilar welding of nickel alloys, steels and stainless steels.
- The weld metal has excellent resistance on pitting and crevice corrosion.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	W
0.01	0.04	0.50	15.86	57.64	16.01	3.67

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		690	
Example	533	745	45

Approvals

ABS, BV, DNV, LR, KR, NK, CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-T622

Inconel 622

Classifications

EN ISO 18274:2010	S Ni 6022 (NiCr21Mo13Fe4W3)	KS B ISO 18274:2014	S Ni 6022 (NiCr21Mo13Fe4W3)
AWS A5.14:2011	ERNiCrMo-10 (UNS N06022)	JIS Z 3334:2011	S Ni 6022 (NiCr21Mo13Fe4W3)

Description

- TIG consumable for inconel 22 and 625, incoloy 25-6Mo and 825 and hastelloy C-276.
- It can be used for dissimilar welding of inconel and incoloy, and carbon, low-alloy, stainless steel.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Fe	W
0.01	0.06	0.07	22.10	Rem.	13.90	4.70	3.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		690	
Example	504	765	47

KW-T690A

Inconel 690

Classifications

AWS A5.14:2011 ERNiCrFe-7A (UNS N06054)

Description

- TIG consumable for inconel 690.
- It can be used for dissimilar welding of nickel alloys, steels or stainless steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Fe	Nb
0.01	0.20	0.43	30.40	57.50	8.80	0.81

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		590	
Example	434	633	42

KW-T60

Monel 400, 402, K-500

Classifications

EN ISO 18274:2010	S Ni 4060 (NiCu30Mn3Ti)	KS B ISO 18274:2014	S Ni 4060 (NiCu30Mn3Ti)
AWS A5.14:2011	ERNiCu-7 (UNS N04060)	JIS Z 3334:2011	S Ni 4060 (NiCu30Mn3Ti)

Description

- TIG consumable for Monel 400, 402. (ASTM B127, B164, B165, UNS N04400)
- It can be used for surfacing steels and dissimilar welding of monel to steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Mo	W
0.03	0.21	3.25	28.58	65.20	0.21	2.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		480	
Example		510	31

Approvals

CE * Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-T617

Inconel 617

Classifications

EN ISO 18274:2010	S Ni 6617 (NiCr22Co12Mo9)	KS B ISO 18274:2014	S Ni 6617 (NiCr22Co12Mo9)
AWS A5.14:2011	ERNiCrCoMo-1 (UNS N06617)	JIS Z 3334:2011	S Ni 6617 (NiCr22Co12Mo9)

Description

- TIG consumable for Inconel 617.
- It can be used for welding parts required strength and corossion resistance at high temperature.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0.07	0.30	0.32	22.31	Rem.	8.76	11.19	0.89

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		620	
Example		620	25

KW-T718

Inconel 718, 706

Classifications

EN ISO 18274:2010	S Ni 7718 (NiCr19Fe19Nb5Mo3)	KS B ISO 18274:2014	S Ni 7718 (NiCr19Fe19Nb5Mo3)
AWS A5.14:201	ERNiFeCr-2 (UNS N07718)	JIS Z 3334:2011	S Ni 7718 (NiCr19Fe19Nb5Mo3)

Description

- TIG consumable for Inconel 718, 706 and X-750.
- It can be used for welding parts required strength and corossion resistance at high temperature.
- The weld metal has the mechanical properties after aging.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Fe	Co
0.05	0.06	0.03	17.55	52.78	3.08	19.80	0.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.14		1140		PWTH
Example	1105	1212	13	

* PWHT : 718°C x 8Hr, furnace cool 3Hr to 620°C and air cool.

KW-TCuNi

Monel 450, Cupronickel

Classifications

EN ISO 24373:2008	S Cu 7158 (CuNi30Mn1FeTi)	KS D 7044:2014	YCuNi-3
AWS A5.7:2007	ERCuNi (UNS C71581)	JIS Z 3341:2007	YCuNi-3

Description

- TIG consumable for 70%Cu-30%Ni Cupronickel and copper alloys.
- It can be used for surfacing steels and dissimilar welding of copper alloys with steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Ti
0.01	0.08	0.79	Rem.	30.71	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		345	
Example		400	18

Approvals

ABS, DNV ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-TCuNi9

UNS 69200, Cupronickel

Classifications

EN ISO 24373:2008	S Cu 7061 (CuNi10)	KS D 7044:2014	YCuNi-1
		JIS Z 3341:2007	YCuNi-1

Description

- TIG consumable for 90%Cu-10%Ni Cupronickel and copper alloys.
- It can be used for surfacing steels and dissimilar welding of copper alloys with steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Ti	Fe
0.002	0.03	0.85	Rem.	10.47	0.31	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	330	468	18

Copper alloy TIG consumables

KW-TCuSnA

Phosphor bronze (Cu - 4~6%Sn)

Classifications

EN ISO 24373:2008	S Cu 5180 (CuSn5P)	KS D 7044:2014	YCuSn A
AWS A5.7:2007	ERCuSn-A (UNS C51800)	JIS Z 3341:2007	YCuSn A

Description

- TIG consumable for coppers, brasses and bronzes.
- It can be used for dissimilar welding of copper alloys.

Typical chemical composition of all-weld metal (%)

Cu	Sn	P	Al	Pb
Rem.	5.35	0.21	0.002	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7	-	240	-
Example	-	387	47

Copper alloy TIG consumables

KW-TCuSnC

Phosphor bronze (Cu - 7~9%Sn)

Classifications

AWS A5.7:2007 ERCuSn-C (UNS C52100)

Description

- TIG consumable for copper, bronze and brasses.
- It can be used for dissimilar welding of copper alloys.

Typical chemical composition of all-weld metal (%)

Cu	Sn	P	Al	Pb
Rem.	5.35	0.21	0.002	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7	-	240	-
Example	-	443	68

T-4043

Al 6000, Cast alloys 43, 355, 356, 214

Classifications

AWS A5.10:2012 ER4043

Description

- 5% Si-Al filler metal that is one of the most widely used Al welding alloys for fabrication and general repair.
- ER4043 can be used on type base metal 3003, 3004, 5052, 6061, 6063 and cast alloys 43, 355, 356, 214.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
4.5-6.0	0.80	0.30	0.05	0.05	0.10	0.20	Rem

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	69-190	144-227	5-12

T-5183

Al 5083, 5086, 5456, 5052, 5652, 5656

Classifications

AWS A5.10:2012 ER5183

Description

- ER5183 contains high Mn, Mg and Cr, with high fracture and impact toughness.
- Applications include marin components, cryogenics, drilling rigs.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.40	0.40	0.10	0.5-1.0	4.3-5.2	0.05-0.25	0.25	0.15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	124-224	275-330	12-16

T-5356

Al 5050, 5052, 5083, 5356, 5454, 5456

Classifications

AWS A5.10:2012 ER5356

Description

- Al-Mg alloys containing up to 5% Mg. ER5356 can be used on type base metal 5050, 5052, 5083, 5356, 5454 and 5456.
- ER5356 is the best aluminum that can be used near or in seawater because of its excellent corrosion resistance.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.25	0.40	0.10	0.05-2.0	4.5-5.5	0.05-0.20	0.10	0.06-0.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	82-206	200-310	10-18

T-5556

Al 5154, 5254, 5456

Classifications

AWS A5.10:2012 ER5556

Description

- Higher levels of Mn, Zn and Mg than ER5356, giving ER5556 increased crack resistance and good ductility.
- Commonly used on 5154, 5254, 5454 and 5456.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.25	0.40	0.10	0.50-1.00	4.70-5.50	0.05-0.20	0.25	0.05-0.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	165-196	290-310	14-16

KW-M61

Nickel 200, 201

Classifications

EN ISO 18274:2010	S Ni 2061 (NiTi3)	KS B ISO 18274:2014	S Ni 2061 (NiTi3)
AWS A5.14:2011	ERNi-1 (UNS N02061)	JIS Z 3334:2011	S Ni 2061 (NiTi3)

Description

- MIG consumable for pure nickel , nickel alloy or repair welding of cast iron.
- It can be used for dissimilar welding of nickel, steels, monel, cupronickel and stainless steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Ti
0.01	0.27	0.40	95.80	3.19

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		380	
Example		450	29

Approvals

CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-MNF1

Ni alloys, Cast iron

Classifications

EN ISO 1071:2003 NiFe-1

Description

- MIG consumable for cast iron and repair welding of cylinder cover, moter bed.
- Preheat the base metal to 150 ~ 300°C is needed for prevent a crack.
- It is only used for one pass welding.
- If a crack appeare in weldment and it grow.
- It can be stoped by making stop-hole at both end of the crack.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Ni	Fe
0.03	0.12	0.27	54.59	Rem.

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
EN ISO 1071	min. 290	min. 420	min. 6
Example	564	430	32

Nickel alloy MIG consumables

KW-M82

Inconel 600, 601, 690/ Incoloy 800, 800HT

Classifications

EN ISO 18274:2010	S Ni 6082 (NiCr20Mn3Nb)	KS B ISO 18274:2014	S Ni 6082 (NiCr20Mn3Nb)
AWS A5.14:2011	ERNiCr-3 (UNS N06082)	JIS Z 3334:2011	S Ni 6082 (NiCr20Mn3Nb)

Description

- MIG consumable for Inconel 600, Incoloy 800(HT). (ASTM B 163, B166, B167 or UNS N06082)
- It can be used for dissimilar welding of Inconel 600 with steels or stainless steels.
- The weld metal has high strength and good corrosion resistance at elevated temperatures.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Fe	Nb+Ta
0.02	0.11	3.09	20.32	71.90	1.04	2.44

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		550	
Example	368	660	48

Approvals

ABS, KR ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

Nickel alloy MIG consumables

KW-M625

Inconel 625 / Incoloy 825

Classifications

EN ISO 18274:2010	S Ni 6625 (NiCr22Mo9Nb)	KS B ISO 18274:2014	S Ni 6625 (NiCr22Mo9Nb)
AWS A5.14:2011	ERNiCrMo-3	JIS Z 3334:2011	S Ni 6625 (NiCr22Mo9Nb)

Description

- MIG consumable for Inconel 625, Incoloy 825.
- It can be used for surfacing of 9% Ni steels or dissimilar welding of Inconel to stainless steels.
- The weld metal has high strength and good corrosion resistance at broad temperature.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Nb
0.01	0.08	0.03	22.24	63.80	8.67	3.36

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		760	
Example	491	770	54

Approvals

ABS, DNV, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-M276

Hastelloy C-276

Classifications

EN ISO 18274:2010	S Ni 6276 (NiCr15Mo16Fe6W4)	KS B ISO 18274:2014	S Ni 6276 (NiCr15Mo16Fe6W4)
AWS A5.14:2011	ERNiCrMo-4	JIS Z 3334:2011	S Ni 6276 (NiCr15Mo16Fe6W4)

Description

- MIG consumable for Hastelloy C276.
- It can be used for surfacing steels and dissimilar welding of nickel alloys, steels and stainless steels.
- The weld metal has excellent resistance on pitting and crevice corrosion.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	W
0.01	0.04	0.50	15.86	57.64	16.01	3.67

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		690	
Example	642	732	47

Approvals

CE ＊Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-M622

Inconel 622

Classifications

EN ISO 18274:2010	S Ni 6022 (NiCr21Mo13Fe4W3)	KS B ISO 18274:2014	S Ni 6022 (NiCr21Mo13Fe4W3)
AWS A5.14:2011	ERNiCrMo-10 (UNS N06022)	JIS Z 3334:2011	S Ni 6022 (NiCr21Mo13Fe4W3)

Description

- MIG consumable for inconel 22 and 625, incoloy 25-6Mo and 825 and hastelloy C-276.
- It can be used for dissimilar welding of inconel and incoloy, and carbon, low-alloy, stainless steel.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Fe	W
0.01	0.06	0.07	22.10	Rem.	13.90	4.70	3.00

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		690	
Example	504	765	43

Nickel alloy MIG consumables

KW-M690A

Inconel 690

Classifications

AWS A5.14:2011 ERNiCrFe-7A (UNS N06054)

Description

- Auto TIG consumable for Inconel 690.
- It can be used for dissimilar welding of nickel alloys, steels or stainless steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.01	0.22	0.35	29.42	59.90	0.04	9.19

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		590	
Example	523	675	44

Nickel alloy MIG consumables

KW-M60

Monel 400, 402, K-500

Classifications

EN ISO 18274:2010	S Ni 4060 (NiCu30Mn3Ti)	KS B ISO 18274:2014	S Ni 4060 (NiCu30Mn3Ti)
AWS A5.14:2011	ERNiCu-7 (UNS N04060)	JIS Z 3334:2011	S Ni 4060 (NiCu30Mn3Ti)

Description

- MIG consumable for Monel 400, 402. (ASTM B127, B164, B165, UNS N04400)
- It can be used for surfacing steels and dissimilar welding of monel to steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Mo	W
0.03	0.21	3.25	28.58	65.20	0.21	2.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		480	
Example		510	31

Approvals

KR, CE ＊ Please refer to our homepage(www.kiswel.com) for further detailed information regarding approvals.

KW-M617

Inconel 617

Classifications

EN ISO 18274:2010	S Ni 6617 (NiCr22Co12Mo9)	KS B ISO 18274:2014	S Ni 6617 (NiCr22Co12Mo9)
AWS A5.14:2011	ERNiCrCoMo-1 (UNS N06617)	JIS Z 3334:2011	S Ni 6617 (NiCr22Co12Mo9)

Description

- MIG consumable for Inconel 617.
- It can be used for welding parts required strength and corossion resistance at high temperature.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Co	Fe
0.07	0.30	0.32	22.31	Rem.	8.76	11.19	0.89

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.14		620	
Example		620	25

KW-M718

Inconel 718, 706

Classifications

EN ISO 18274:2010	S Ni 7718 (NiCr19Fe19Nb5Mo3)	KS B ISO 18274:2014	S Ni 7718 (NiCr19Fe19Nb5Mo3)
AWS A5.14:2011	ERNiFeCr-2 (UNS N07718)	JIS Z 3334:2011	S Ni 7718 (NiCr19Fe19Nb5Mo3)

Description

- MIG consumable for Inconel 718, 706 and X-750.
- It can be used for welding parts required strength and corossion resistance at high temperature.
- The weld metal has the mechanical properties after aging.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cr	Ni	Mo	Fe	Co
0.05	0.06	0.03	17.55	52.78	3.08	19.80	0.03

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)	Remarks
AWS A5.14		1140		PWTH
Example	961	1155	13	

* PWHT : 718°C x 8Hr, furnace cool 3Hr to 620°C and air cool.

Copper alloy MIG consumables

KW-MCuNi

Monel 450, Cupronickel

Classifications

EN ISO 24373:2008	S Cu 7158 (CuNi30Mn1FeTi)	KS D 7044:2014	YCuNi-3
AWS A5.7:2007	ERCuNi (UNS C71581)	JIS Z 3341:2007	YCuNi-3

Description

- MIG consumable for 70%Cu-30%Ni Cupronickel and copper alloys.
- It can be used for surfacing steels and dissimilar welding of copper alloys to steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Ti
0.01	0.08	0.79	Rem.	30.71	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7		345	
Example		345	30

Copper alloy MIG consumables

KW-MCuNi9

UNS 69200, Cupronickel

Classifications

EN ISO 24373:2008	S Cu 7061 (CuNi10)	KS D 7044:2014	YCuNi-1
		JIS Z 3341:2007	YCuNi-1

Description

- MIG consumable for 90%Cu-10%Ni Cupronickel and copper alloys.
- It can be used for surfacing steels and dissimilar welding of copper alloys to steels.

Typical chemical composition of all-weld metal (%)

C	Si	Mn	Cu	Ni	Ti	Fe
0.002	0.03	0.85	Rem.	10.47	0.31	0.30

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	253	399	23

KW-MCuAlA2

Aluminum bronze (Cu - 8.5~11.0%Al)

Classifications

EN ISO 24373:2008	S Cu 6180 (CuAl10Fe)	KS D 7044:2014	YCuAl
AWS A5.7:2007	ERCuAl-A2 (UNS C61800)	JIS Z 3341:2007	YCuAl

Description

- MIG consumable for aluminum bronze and many ferrous and non ferrous metals.
- It can be used for resistance to corrosion, erosion and repair welding.

Typical chemical composition of all-weld metal (%)

Cu	Zn	Mn	Fe	Si	Al	Pb
Rem.	0.006	0.01	0.79	0.05	9.04	0.001

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7		414	
Example		556	32

KW-MCuSi

Silicon-Bronze (Cu - 3%Si)

Classifications

EN ISO 24373:2008	S Cu 6560 (CuSi3Mn1)	KS D 7044:2014	YCuSi B
AWS A5.7:2007	ERCuSi-A (UNS C65600)	JIS Z 3341:2007	YCuSi B

Description

- MIG consumable for silicon bronzes, brasses and galvanized steels.
- It can be used for surfacing area subjected to corrosion.
- Keep the weld puddle small to promote fast solidification and minimize cracking.

Typical chemical composition of all-weld metal (%)

Cu	Zn	Mn	Fe	Si	Al	Pb
Rem.	0.005	0.85	0.03	2.94	0.002	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7		345	
Example		375	43

Copper alloy MIG consumables

KW-MCuSnA

Phosphor bronze (Cu - 4~6%Sn)

Classifications

EN ISO 24373:2008	S Cu 5180 (CuSn5P)	KS D 7044:2014	YCuSn A
AWS A5.7:2007	ERCuSn-A (UNS C51800)	JIS Z 3341:2007	YCuSn A

Description

- MIG consumable for coppers, brasses and bronzes.
- It can be used for dissimilar welding of copper alloys.

Typical chemical composition of all-weld metal (%)

Cu	Sn	P	Al	Pb
Rem.	5.35	0.21	0.002	0.003

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7		240	
Example		391	40

Copper alloy MIG consumables

KW-MCuSnC

Phosphor bronze (Cu - 7~9%Sn)

Classifications

AWS A5.7:2007 ERCuSn-C (UNS C52100)

Description

- MIG consumable for copper, bronze and brasses.
- It can be used for dissimilar welding of copper alloys.

Typical chemical composition of all-weld metal (%)

Cu	Sn	P	Al	Pb
Rem.	7.29	0.12	0.001	0.002

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
AWS A5.7		240	
Example		373	35

M-4043

Al 6000, Cast alloys 43, 355, 356, 214

Classifications

AWS A5.10:2012 ER4043

Description

- 5% Si-Al filler metal that is one of the most widely used Al welding alloys for fabrication and general repair.
- ER4043 can be used on type base metal 3003, 3004, 5052, 6061, 6063 and cast alloys 43, 355, 356, 214.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
4.5-6.0	0.80	0.30	0.05	0.05	0.10	0.20	Rem

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	69-190	144-227	5-12

M-5183

Al 5083, 5086, 5456, 5052, 5652, 5656

Classifications

AWS A5.10:2012 ER5183

Description

- ER5183 contains high Mn, Mg and Cr, with high fracture and impact toughness.
- Applications include marin components, cryogenics, drilling rigs.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.40	0.40	0.10	0.5-1.0	4.3-5.2	0.05-0.25	0.25	0.15

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	124-224	275-330	12-16

M-5356

Al 5050, 5052, 5083, 5356, 5454, 5456

Classifications

AWS A5.10:2012 ER5356

Description

- Al-Mg alloys containing up to 5% Mg. ER5356 can be used on type base metal 5050, 5052, 5083, 5356, 5454 and 5456.
- ER5356 is the best aluminum that can be used near or in seawater because of its excellent corrosion resistance.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.25	0.40	0.10	0.05-2.0	4.5-5.5	0.05-0.20	0.10	0.06-0.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	82-206	200-310	10-18

M-5556

Al 5154, 5254, 5456

Classifications

AWS A5.10:2012 ER5556

Description

- Higher levels of Mn, Zn and Mg than ER5356, giving ER5556 increased crack resistance and good ductility.
- Commonly used on 5154, 5254, 5454 and 5456.

Typical chemical composition of all-weld metal (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.25	0.40	0.10	0.50-1.00	4.70-5.50	0.05-0.20	0.25	0.05-0.20

Typical mechanical properties of all-weld metal

	Y.S (MPa)	T.S (MPa)	El. (%)
Example	165-196	290-310	14-16

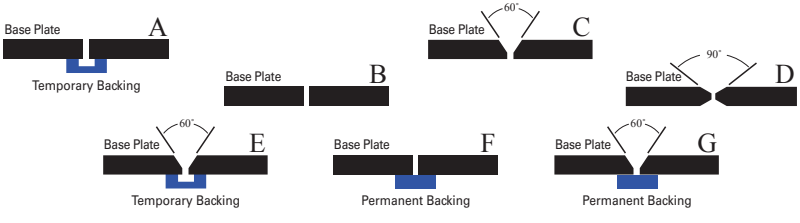
MIG Welding Parameters by Joint Design

Base metal thickness (mm)	Welding position	Joint type	Joint gap	Welding passes	Wire diameter (mm)	Welding currnet (A)	Voltage	Travel speed (cm/min)	Gas flow rate (ℓ/min)
1.6	F	A	0	1	0.8	70-110	15-20	25-45	12
	F	F	2.4	1	0.8	70-110	15-20	25-45	12
2.4	F	A	0	1	0.8-1.2	110-145	18-22	25-45	15
	F, V, H, O	F	3.2	1	0.8	110-130	18-23	23-30	15
2.4	F	A	0-2.4	1	0.8-1.2	120-150	20-24	24-30	15
	F, V, H, O	F	4.8	1	0.8-1.2	110-135	19-23	18-28	15
3.2	F, V, H	B	0-1.6	1f, 1b	0.8-1.2	130-175	22-26	24-30	17
	F, V, H	E	0-1.6	1	1.2	140-180	23-27	24-30	30
	O	E	0-1.6	2f	1.2	140-145	23-27	24-30	30
	F, V	G	2.4-4.8	2	1.2-1.6	140-185	23-27	24-30	17
	H, O	G	4.8	3	1.2	130-175	23-27	25-35	30
4.8	F	B	0-2.4	1f, 1b	1.2-1.6	175-200	24-28	24-30	20
	F	E	0-2.4	2	1.2-1.6	185-225	24-29	24-30	20
	V, H	E	0-2.4	3f, 1b	1.2	165-190	25-29	25-35	22
	O	E	0-2.4	3f, 1b	1.2-1.6	180-200	25-29	25-35	30
	F, V	G	3.2-6.4	2-3	1.2-1.6	175-225	25-29	24-30	20
	O, H	G	6.4	4-6	1.2-1.6	170-200	25-29	25-40	30
10	F	C-90°	0-2.4	1f, 1b	1.6	225-290	26-29	20-30	25
	F	E	0-2.4	2f, 1b	1.6	225-290	26-29	25-35	25
	V, H	E	0-2.4	3f, 1b	1.6	190-220	26-29	24-30	26
	O	E	0-2.4	5f, 1b	1.6	200-250	26-29	25-40	40
	F, V	G	6.4-9.6	4	1.6	210-290	26-29	24-30	25
	O, H	G	9.6	8-10	1.6	190-260	26-29	25-40	40
20	F	C-60°	0-2.4	3f, 1b	1.6-2.4	340-400	26-31	14-20	30
	F	E	0-3.2	4f, 1b	2.4	325-375	26-31	16-20	30
	V, H, O	E	0-1.6	8f, 1b	1.6	240-300	26-30	24-30	40
	F	D	0-1.6	3f, 3b	1.6	270-330	26-30	16-24	40
	V, H, O	D	0-1.6	6f, 6b	1.6	230-280	26-30	16-24	40

Welding positions : F flat, V vertical, H horizontal, O overhead

Weld passes : f, front, b,back

Joint designs for Metal Inert Gas(MIG) welding



TIG Welding Parameters for lap and fillet Welds

Power source : AC or DC GTAW

Shielding gas : 100% Argon (recommended)

Tungsten : Pure or Zirconated

Parameters
Fflat. H horizontal, 0 overhead

Base metal thickness (mm)	Welding position	Wire diameter (mm)	Tungsten size (mm)	Gas cup (mm)	Gas flow (cf/hr)	Welding currnet (AC)	Travel speed (cm/min)	Filler consumption (kg/10m)
1.6	F,H,V	2.4	1.6-2.4	9.5	16	70-110	200-250	0.08
	O	2.4	1.6-2.4	9.5	20	65-90	200-250	0.08
2.4	F	2.4-3.2	3.2-4.0	9.5	18	110-145	200-250	0.15
	H,V	2.4	2.4-3.2	9.5	18	90-125	200-250	0.15
	O	2.4	3.2-4.0	9.5	20	110-135	200-250	0.15
3.2	F	3.2	3.2-4.0	11.2	20	135-175	250-300	0.30
	H,V	3.2	2.4-3.2	9.5	20	115-145	200-250	0.38
	O	3.2	2.4-3.2	11.2	25	125-155	200-250	0.30
4.8	F	4.0	4.0-4.8	12.7	25	190-245	200-250	0.70
	H,V	4.0	4.0-4.8	12.7	25	175-210	200-250	0.85
	O	4.0	4.0-4.8	12.7	30	185-225	200-250	0.70
6.4	F	4.8	4.8-6.4	12.7	30	240-295	200-250	1.05
	H,V	4.8	4.8	12.7	30	220-265	200-250	1.35
	O	4.8	4.8	12.7	30	230-275	200-250	1.05

Tips for Welding Aluminum

Clean the Weld Zone

Aluminum must be properly prepared and cleaned prior to welding to insure good results. Some of the primary causes of problems that occur when welding aluminum are due to improper plate cleanliness and preparation. Before welding all moisture, lubricants, coatings, ink, dirt and oxides must be properly removed from the base metal. It is first necessary to make sure there is no moisture present and the aluminum is at room temperature. Cold aluminum can condense moisture upon welding and create porosity.
If necessary, aluminum may be preheated up to 65.5°C to eliminate moisture.
Lubricants and coatings are the next step. Most aluminum will be supplied with some sort of protective oil or coating. This should be first treated with toluene solvent, which will remove the oils and greases that may be present. All joint areas should be thoroughly cleaned and dried with a clean, un-contaminated cloth. Do not use compressed air to dry components as this will most likely contain contaminants.

Oxides

Oxides that form on the surface of aluminum are one of the common reasons for poor or failed joining of the filler metal to the base plate when welding. These oxides can be removed a couple of ways;
The first way is to use a stainless steel scratch brush that has not been used on any ferritic steels, as the brush can pick up carbon or other contaminates from carbon steel. Clean the brush frequently with toluene solvent. Power brushing may also be done at low RPM's to avoid deforming the base metal.
The second is an acid cleanser (your distributor may have this in stock). After cleaning the area should be rinsed and dried, followed by brushing as noted above.
Heavy oxidation can also be removed with a hot sodium hydroxide etching solution with a nitric acid rinse. This is more stringent cleaning method and necessitates milling or wire brushing before welding.

Grinding

Grinding may also be performed in surface preparation, but be sure to use a flexible disc that is rated for aluminum. Typically a 30 - 50 grit is adequate to prevent loading up the disc surface. Keep pressure light to prevent deforming the base metal surface. Wheel grinders are not recommended.

Shielding Gas

Aluminum requires a completely inert shielding gas (no oxygen or CO_2). Recommended gases are : 100% argon, 100% helium or an argon/helium mix. The most widely used shielding gas in aluminum welding is 100% argon. This is due to a couple of factors; firs tis the cost.
Helium is significantly more expensive than argon but argon gives good results in both TIG and MIG welding of aluminum. Also, helium enhances penetration when welding on heavier gauge materials, this can be of benefit, but usually this is not the case in TIG welding as most applications are on thinner materials. In this case, helium is not necessary.

Tips for Welding Aluminum

Equipment check for MIG welding

For optimum performance when MIG welding, the following equipment should be used; "U"-shaped drive rolls with proper tension (Aluminum can easily be deformed by over-tightening or by using "V" or knursed drive rolls), Teflon or nylon liners and guides, make sure contact tips and nozzles are free of damage or spatter build-up, See that drive rollers are aligned properly with input and output guides. Check all gas connections and water cooling system for leaks, and make sure contact tips are the correct size for your wire diameter.

It is best to use a MIG gun with a straight or slightly curved neck (sharp bends can cause binding). Check all electrical connections and replace worn or damaged components or tighten where necessary (C.V.power supplies rely on good electrical connections in order to send the proper signal back to the machine).

Tungsten choices

The standard tungsten electrode for aluminum welding is the Pure Tungsten, EWP (green tip). It produces a stable arc once the ball is formed. Although it's high purity somewhat diminishes it's current carrying capacity, pure tungsten is generally more obtainable and has long been the industry standard.

The Zirconated Tungsten, EWZr (Brown tip) is similar to the Pure but with better current carrying capacity. EWZr-I is more resistant to contamination than pure tungsten and has good radiographic-quality welding properties.

DC TIG welding

Nearly all aluminum TIG welding is done with AC current (high frequency), and is the only recommended way to TIG weld aluminum. However, the question comes up regularly if DC TIG will work on aluminum. The principal factor here are the oxides that form on the surface of aluminum. Aluminum melts at approx. 650°C, while aluminum oxides melt at approx. 2,040°C.

These oxidizes form almost instantly once aluminum is clean and unprotected. DC current simply does not have the "bite" necessary to cut through the oxides as high frequency AC current does. While DC TIG can be performed with the use of pharmaceutical grade High Purity Helium and a powerful etching solution, It is usually not worth the effort and expense.

Trouble Shooting

Problem	TIG Welding	MIG Welding	Solution
Poor Arc Starting	- Broken circuit - bad ground No shielding gas - Wrong polarity - Anodizing or coating on metal - Defective cooling system	- Broken circuit - bad ground No shielding gas - Wrong polarity - Anodizing or coating on metal - Improper wire feed rate	- Check connections and re-ground. Check gas supply and regulator - pressure, pre-purge. - Change polarity - Perform proper metal cleaning. Repair cooling system or dial in wire feed rate.
Unstable Arc	- Inconsistent voltage flow - Contaminated joint area - Arc blow (Strong magnetic field) - Oversized electrode diameter - Workpiece is too cold	- Inconsistent voltage flow - Contaminated joint area - Arc blow - Conduit angle too high - Workpiece is too cold	- Check or repair electrical connections. - Perform proper metal cleaning. - Stop welding, adjust ground clamp position to eliminate magnetic field. - Reduce electrode size or adjust angle. - Let stand at room temperature for 24 hours or preheat to 150F
Porosity	- Hydrogen contamination on wire or base metal - Base metal cooling too fast - Wet or dirty gas shield - Insufficient or interrupted gas flow - Current setting too low	- Hydrogen contamination on wire or base metal - Base metal cooling too fast - Wet or dirty gas shield - Insufficient or interrupted gas flow - Current setting too low	- Keep wire in a low humidity container and perform proper metal cleaning. - Pre-heat heavy sections or slow travel speed. - Replace gas supply - Increase flow rate or block cross wind. - Increase welding current
Dirty welds	- Inadequate gas shield - Contaminated filler metal - Contamination/oxides in joint area	- Inadequate gas shield - Contaminated filler metal - Contamination/oxides in joint area	- Increase gas flow rate, block cross wind, change gun angle, replace clogged or damaged gas nozzle, hold nozzle closer to work. - If wire was stored and handled properly, contact Washington Alloy. - Perform proper metal cleaning.
Color mis-match	- Wrong filler metal	- Wrong filler metal	- Consult alloy selection chart and foot notes.
Lack of fusion or penetration	- Welding current too low - Travel speed too fast - Arc length too long - Contaminated weld joint - Wrong groove shape - Oxides on base metal	- Welding current too low - Travel speed too fast - Arc length too long - Contaminated weld joint - Wrong groove shape - Oxides on base metal	- Increase welding current - Slow travel speed, allow puddle to penetrate - Reduce arc length or incrase wire feed speed. - Perform proper metal-cleaning - Reconfigure joint (see fig.A thru G in joint design section) - Perform proper metal cleaning
Weld Cracking	- Wrong filler metal - Voltage too high - Too little filler metal in joint - Contaminated weld joint - Shrinkage due to joint design - Wrong welding technique	- Wrong filler metal - Voltage too high - Too little filler metal in joint - Contaminated weld joint - Shrinkage due to joint design - Wrong welding technique	- Re-check Alloy selection chart and sub notes. - Check parameter chart and adjust voltage - Slow travel speed, allow full puddle to form. - Perform proper metal cleaning - Narrow joint gap or increase bevel angle Pre-heat heavy sections. - Clamp parts to minimize stress. - Reduce heat zone with higher traverse speed. - Make convex beads, not concave. Make sure weld puddle is not too small. Minimize super-heated molten metal.
Burn back	- Tungsten touches puddle	- Contact tip touches puddle - Wire feed too slow - Current surge arching in tip - Wire too soft or kinked - Conduit dirty, damaged or too long. - MIG gun over-heating - Arching in tip - Spatter build up on tip - Aluminum shavings in liner or contact tip. - Wrong polarity - Line voltage fluctuation	- Adjust arc length or recess contact tip. - Increase feed speed for C.C. and decrease voltage on C.V - Reduce Run-in feed speed for C.V. - Contact Nexal or your supplier. - Replace conduit and consider a push-pull gun if shortening the conduit is not feasible. - Lower duty cycle or replace gun with a water-cooled model. - Match the tip size with wire diameter - Clean or replace tip - Use "U" shaped drive roll. Properly align with input guide, drive roll tension should be just enough to prevent slipping. Make sure you are using a Teflon liner. - Change polarity - Use line voltage control

Selection Guide For Aluminum Welding

Base metal / Base metal	201.0 206.0 224.0	319.0, 333.0 354.0, 355.0 C355.0	356.0, A356.0 357.0, A357.0 413.0, 443.0 A444.0	511.0, 512.0 513.0, 514.0 535.0	7004, 7005 7039, 710.0 712.0	6009 6010 6070	6005, 6061 6063, 6101 6151, 6201 6351, 6951	5456	5454	5154 5254[j]
1060, 1070, 1080, 1350	ER4145	ER4145	ER4043[a, b]	ER5356[c, d]	ER5356[c, d]	ER4043[a, b]	ER4043[b]	ER5356[d]	ER4043[b, d]	ER5356[c, d]
1100, 3003, Al≤3003	ER4145	ER4145	ER4043[a, b]	ER5356[c, d]	ER5356[c, d]	ER4043[a, b]	ER4043[b]	ER5356[d]	ER4043[b, d]	ER5356[c, d]
2014, 2036	ER4145[e]	ER4145[e]	ER4145	-	-	ER4145	ER4145	-	-	-
2219	ER2319[a]	ER4145[e]	ER4145[b, c]	ER4043	ER4043	ER4043[a, b]	ER4043[a, b]	-	ER4043[b]	ER4043
3004, Al≤3004	-	ER4043[b]	ER4043[b]	ER5356[f]	ER5356[f]	ER4043[b]	ER4043[b, f]	ER5356[d]	ER5356[f]	ER5356[f]
5005, 5050	-	ER4043[b]	ER4043[b]	ER5356[f]	ER5356[f]	ER4043[b]	ER4043[b, f]	ER5356[d]	ER5356[f]	ER5356[f]
5052, 5652[i]	-	ER4043[b]	ER4043[f]	ER5356[f]	ER5356[f]	ER4043[b]	ER5356[c, f]	ER5356[f]	ER5356[f]	ER5356[f]
5083	-	-	ER5356[c, d]	ER5356[d]	ER5183[d]	-	ER5356[d]	ER5356[d]	ER5183[f]	ER5356[d]
5086	-	-	ER5356[c, d]	ER5356[d]	ER5356[d]	-	ER5356[d]	ER5356[d]	ER5356[d]	ER5356[d]
5154, 5254[j]	-	-	ER4043[f]	ER5356[f]	ER5356[f]	-	ER5356[f]	ER5356[f]	ER5356[f]	ER5356[f, i]
5454	-	ER4043[b]	ER4043[f]	ER5356[f]	ER5356[f]	ER4043[b]	ER5356[c, f]	ER5356[f]	ER5356[c, f]	
5456	-	-	ER5356[c, d]	ER5356[d]	ER5556[d]	-	ER5356[d]	ER5356[d]		
6005, 6061, 6063 6101, 6151, 6201 6351, 6951	ER4145	ER4145[b, c]	ER4043[b, f, g]	ER5356[f]	ER5356[c, f]	ER4043[a, b, g]	ER4043[b, f, g]			
6009, 6010, 6070	ER4145	ER4145[b, c]	ER4043[a, b, g]	ER4043	ER4043	ER4043[a, b, g]				
7004, 7005, 7039 710.0, 712.0	-	ER4043[b]	ER4043[b, f]	ER5356[f]	ER5356[d]					
511.0, 512.0, 513.0 514.0, 535.0	-	-	ER4043[f]	ER5356[f]						
356.0, A356.0, 357.0 A357.0, 413.0, 443.0 A444.0	ER4145	ER4145[b, c]	ER4043[b, h]							
319.0, 333.0, 354.0 355.0, C355.0	ER4145[c]	ER4145[b, c, h]								
201.0, 206.0, 224.0	ER2319[a, h]									

a. ER4145 can also be used in some applications.
b. ER4047 can also be used in some applications.
c. ER4043 can also be used in some applications.
d. ER5183, ER5336 or ER5556 may also be used.
e. ER2319 can also be used in some applications.
f. ER5183, ER5356, ER5554, ER5556 and ER5654 can also be used.

Selection Guide For Aluminum Welding

Base metal \ Base metal	5086	5083	5052 5356[i]	5005 5050	3004 Alc.3004	2219	2014 2036	1100 3003 Alc.3003	1060 1070 1080 1350
1060, 1070, 1080, 1350	ER5356[d]	ER5356[d]	ER4043[b, d]	ER1100[b, c]	ER4043[b, d]	ER4145[b, c]	ER4145	ER1100[b, c]	ER1188[b, c, h, j]
1100, 3003, Alᶜ3003	ER5356[d]	ER5356[d]	ER4043[b, d]	ER1100[b, c]	ER4043[b, d]	ER4145[b, c]	ER4145	ER1100[b, c]	
2014, 2036	-	-	-	ER4145	ER4145	ER4145[e]	ER4145[e]		
2219	-	-	ER4043[b]	ER1100[a, b]	ER4043[a, b]	ER2319[a]			
3004, Alᶜ3004	ER5356[d]	ER5356[d]	ER5356[c, f]	ER5356[c, f]	ER5356[c, f]				
5005, 5050	ER5356[d]	ER5356[d]	ER5356[c, d]	ER5356[c, f]					
5052, 5652[j]	ER5356[d]	ER5356[d]	ER5654[c, f, i]						
5083	ER5356[d]	ER5183[d]							
5086	ER5356[d]								
5154, 5254[j]									
5454									
5456									
6005, 6061, 6063 6101, 6151, 6201 6351, 6951									
6009, 6010, 6070									
7004, 7005, 7039 710.0, 712.0									
511.0, 512.0, 513.0 514.0, 535.0									
356.0, A356.0, 357.0 A357.0, 413.0, 443.0 A444.0									
319.0, 333.0, 354.0 355.0, C355.0									
201.0, 206.0, 224.0									

g. ER4643 and ER4943 provide higher tensile strength than ER4043 and are used for solid solution and aging treatment after welding thick 6XXX base metal.

h. In some cases, the same welding material as the base material is used.

i. Base alloys 5254 and 5652 are used in hydrogen peroxide related fields. ER5654 is used for welding base metals used at temperatures below 66°C.

j. ER1100 can also be used in some applications.

Welding Consumables

APPENDIX

GENERAL INFORMATION

LIST OF DRYING CONDITION for SMAW

WELDING CONSUMABLES GUIDANCE

RECOMMENDED KISWEL LTD.
FILLER METALS for Welding the ASTM Steels

CONVERSION TABLES

ASW / EN ISO SPECIFICATION

ASW

SMAW | K-8018B2 AWS Classification

AWS A5.5 **E8018-B2**

- Electrode
- Minimum Tensile Strength (80=80ksi)
- Welding Position (1=All position, 2=Flat & Horizontal)
- Type of Current and Coating
- Designates the chemical composition of the undiluted weld metal

GMAW(SOLID) | KC-25 AWS Classification

AWS A5.18 **ER 70 S-3**

- Electrode
- Rod
- Minimum Tensile Strength (70=70ksi)
- Solid
- Chemistry, Amount of Deoxidizers (Silicon. Manganese. Aluminum. Zirconium. Titanium X=2, 3, 4, 6, 7 or G

GMAW(FCW) | K-81TM AWS Classification

AWS A5.29 **E 81 T1-Ni1M**

- Current Carrying Electrode
- Minimum Tensile Strength (8=80ksi)
- Welding Position ('O'= Flat & Horizontal Only. 'I' = All Position)
- Tubular Electrode (Flux Cored)
- Usability (Specifies Requirements for Polarity and General Operating Characteristics)
- Deposit composition designator
- Shielding Gas Type ('M'= 75-80% Ar/Balance CO_2 Mixed Gas, 'C'= 100%CO_2 Blank=No Shielding Gas)

SAW | EF-100H/KD-50 AWS Classification

AWS A5.17 **F7A(P)2-EH14**

- Flux
- Minimum Tensile Strength (7=70-95ksi)
- Heat treatment condition ("A": As-Welded/"p":PWHT (Post weld heat treatment))
- Temperature of charpy V-notch test (Minimum average impact value : 27J)
- Classification symbol for combination wire

GENERAL INFOMATION I

EN ISO

SMAW | EN ISO 3580-A Classification of covered electrodes for Manual Metal Arc Welding of creep resistant steels

E CrMo1 B 3 2 H10 **K-8018B2**

Hydrogen content → H_{DM} (ml/100g)

H5 = max.5
H10 = max. 10
H15 = max.15

Welding positions →

Symbol	positions
1	PA, PB, PC, PD PE, PF, PG
2	PA, PB, PC, PD PE, PF
3	PA, PB
4	PA
5	PA, PB , PG
In accordance with ISO 6947:2011	

Current type and recovery →

Symbol	Nominal electrode efficiency, η, %	Type of covering
1	D ≤ 105	AC + DC
2		DC
3	105 < D ≤ 125	AC + DC
4		DC
5	125 < D ≤ 160	AC + DC
6		DC
7	D > 160	AC + DC
8		DC

Type of covering

A	Acid
C	Cellulosic
R	Rutile
RR	Rutile thick Coated
RC	Rutile Cellulosic
RA	Rutile Acid
RB	Rutile Basic
B	Basic

Chemical composition

Chemical composition	C	Si	Mn	P	S	Cr	Mo	V	Other elements
Mo	0.10	0.80	0.40-1.50	0.030	0.025	0.2	0.40-0.70	0.30	-
MoV	0.03-0.12	0.80	0.40-1.50	0.030	0.025	0.30-0.60	0,80-1.20	0.25-0.60	-
CrMo0.5	0.05-0.12	0.80	0.40-1.50	0.030	0.025	0.40-0.65	0.40-0.65	-	-
CrMo1	0.05-0.12	0.80	0.40-1.50	0.030	0.025	0.90-1.40	0.45-0.70	-	-
CrMo1L	0.05	0.80	0.40-1.50	0.030	0.025	0.90-1.40	0.45-0.70	-	-
CrMoV1	0.05-0.15	0.80	0.70-1.50	0.030	0.025	0.90-1.30	0.90-1.30	0.10-0.35	-
CrMo2	0.05-0.12	0.80	0.40-1.30	0.030	0.025	2.0-2.6	0.90-1.30	-	-
CrMo2L	0.05	0.80	0.40-1.30	0.030	0.025	2.0-2.6	0.90-1.30	-	-
CrMo5	0.03-0.12	0.80	0.40-1.50	0.025	0.025	4.0-6.0	0.40-0.70	-	-
CrMo9	0.03-0.12	0.60	0.40-1.30	0.025	0.025	8.0-10.0	0.90-1.20	0.15	Ni 1.0
CrMo91	0.06-0.12	0.60	0.40-1.50	0.025	0.025	8.0-10.5	0.80-1.20	0.15-0.30	Ni 0.40-1.00 Nb 0.03-0.10 N 0.02-0.07
CrMoWV12	0.15-0.22	0.80	0.40-1.30	0.025	0.025	10.0-12.0	0.80-1.20	0.20-0.40	Ni 0.8 W 0.40-0.60

Covered electrode

GMAW(SOLID) | EN ISO 14341-A Classification of solid wires and deposits for MIG/MAG welding of non alloy and fine grain steels

G 42 2 M21 2Si **KC-25**

Chemical composition, % (by mass)									
Symbol	C	Si	Mn	P	S	Ni	Mo	Al	Ti+Zr
2Si	0.06 to 0.14	0.50 to 0.80	0.90 to 1.30	0.025	0.025	0.15	0.15	0.02	0.15
3Si1	0.06 to 0.14	0.70 to 1.00	1.30 to 1.60	0.025	0.025	0.15	0.15	0.02	0.15
3Si2	0.06 to 0.14	1.00 to 1.30	1.30 to 1.60	0.025	0.025	0.15	0.15	0.02	0.15
4Si1	0.06 to 0.14	0.80 to 1.20	1.60 to 1.90	0.025	0.025	0.15	0.15	0.02	0.05 to 0.25
2Ti	0.06 to 0.14	0.40 to 0.80	0.90 to 1.40	0.025	0.025	0.15	0.15	0.05 to 0.20	0.15
2Al	0.08 to 0.14	0.30 to 0.50	0.90 to 1.30	0.025	0.025	0.15	0.15	0.35 to 0.75	0.15
3Ni1	0.06 to 0.14	0.50 to 0.90	1.00 to 1.60	0.020	0.020	0.80 to 1.50	0.15	0.02	0.15
2Ni2	0.06 to 0.14	0.40 to 0.80	0.80 to 1.40	0.020	0.020	2.10 to 2.70	0.15	0.02	0.15
2Mo	0.08 to 0.12	0.30 to 0.70	0.90 to 1.30	0.020	0.020	0.15	0.40 to 0.60	0.02	0.15
4Mo	0.06 to 0.14	0.50 to 0.80	1.70 to 2.10	0.025	0.025	0.15	0.40 to 0.60	0.02	0.15
Z	Any other agreed composition								

Symbol	Temp.
Z	No requirment
A	+20
0	0
2	-20
3	-30
4	-40
5	-50
6	-60
7	-70
8	-80
9	-90
10	-100

Type of shielding gas → M21=Mixed gas(Ar+(15-25%)CO_2)
C1=100% CO_2

Temperature of impact test (Minimum average value : 47J)

Symbol	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)
35	≥ 355	440-570	≥ 22%
38	≥ 380	470-600	≥ 20%
42	≥ 420	500-640	≥ 20%
46	≥ 460	530-680	≥ 20%
50	≥ 500	560-720	≥ 18%

Symbol for tensile properties(MPa)

Solid wire for GMAW-process

GENERAL INFOMATION I

GMAW(FCW) | EN ISO 17632-A Classification of tubular electrodes for metal arc welding with or without a gas shield of non alloy and fine grain steels

T 50 4 1Ni P M21 1 H5 **K-81TM**

Hydrogen content → HDM (ml/100g)

H5 = max.5
H10 = max. 10
H15 = max.15

Welding positions →

Symbol	positions
1	PA, PB, PC, PD PE, PF, PG
2	PA, PB, PC, PD PE, PF
3	PA, PB
4	PA
5	PA, PB , PG
In accordance with ISO 6947:2011	

Type of shielding gas →

M21=Mixed gas(Ar+(15-25%)CO_2)
C1=100% CO_2

Type of electrode core →

Symbol	Characteristics	Types of weld	Shielding Gas
R	Rutile, Slow freezing slag	Single and Multiple pass	Required
P	Rutile, Fast freezing slag	Single and Multiple pass	Required
B	Basic	Single and Multiple pass	Required
M	Metal powder	Single and Multiple pass	Required
V	Rutile or Basic/Fluoride	Single pass	No Required
W	Basic/Fluoride, Slow-freezing slag	Single and Multiple pass	No Required
Y	Basic/Fluoride, Fast-freezing slag	Single and Multiple pass	No Required
Z	Other types		

Chemical composition →

Symbol	Mn	Si	Ni	Mo
No Symbol	2.0	-	0.5	0.2
Mo	1.4	-	0.5	0.3 ~ 0.6
MnMo	1.4 - 2.0	-	0.5	0.3 ~ 0.6
1Ni	1.4	0.8	0.6 ~ 1.2	0.2
1.5Ni	1.6	-	1.2 ~ 1.8	0.2
2Ni	1.4	-	1.8 ~ 2.6	0.2
3Ni	1.4	-	2.6 ~ 3.8	0.2
Mn1Mo	1.4 - 2.0	-	0.6 ~ 1.2	0.2
1NiMo	1.4 - 2.0	-	0.6 ~ 1.2	0.3 ~ 0.6
Z	Any other agreed composition			

Temperature of impact test (Minimum average value : 47J)

Symbol	Temp.
Z	No requirment
A	+20
0	0
2	-20
3	-30
4	-40
5	-50
6	-60
7	-70
8	-80
9	-90
10	-100

Symbol for tensile properties (MPa)

Symbol	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)
35	≥ 355	440-570	≥ 22%
38	≥ 380	470-600	≥ 20%
42	≥ 420	500-640	≥ 20%
46	≥ 460	530-680	≥ 20%
50	≥ 500	560-720	≥ 18%

Flux-cored wire

SAW | EN ISO 14171-A Classification of wire and wire/flux combinations for submerged arc welding of non alloy and fine grain steels

S 46 3 AB S4 — **EF-100H/KD-50**

Type of flux

Symbol	Description
MS	Manganese-silicate
CS	Calcium-silicate
CG	Calcium-magnesium
CB	Calcium-magnesium basic
CG-I	Calcium-magnesium with iron
CB-1	Calcium-magnesium basic with iron
GS	Magnesium-silicate
ZS	Zirconium-silicate
RS	Rutile-silicate
AR	Aluminate-rutile
BA	Basic-alumina
AAS	Acid-aluminum-silicate
AB	Aluminate-basic
AS	Aluminate-silicate
AF	Aluminate-fluoride-basic
FB	Fluoride-basic
Z	Any other agreed composition

Symbol	Temp.
Z	No requirment
A	+20
0	0
2	-20
3	-30
4	-40
5	-50
6	-60
7	-70
8	-80
9	-90
10	-100

Temperature of impact test (Minimum average value : 47J)

Chemical composition, % (by mass)[a][c]									
Symbol	C	Si	Mn	P	S	Mo	Ni	Cr	Cu
S1	0.05 to 0.15	0.15	0.35 to 0.60	0.025	0.025	0.15	0.15	0.15	0.30
S2	0.07 to 0.15	0.15	0.80 to 1.30	0.025	0.025	0.15	0.15	0.15	0.30
S3	0.07 to 0.15	0.15	1.30 to 1.75	0.025	0.025	0.15	0.15	0.15	0.30
S4	0.07 to 0.15	0.15	1.75 to 2.25	0.025	0.025	0.15	0.15	0.15	0.30
S1Si	0.07 to 0.15	0.15 to 0.40	0.35 to 0.60	0.025	0.025	0.15	0.15	0.15	0.30
S2Si	0.07 to 0.15	0.15 to 0.40	0.80 to 1.30	0.025	0.025	0.15	0.15	0.15	0.30
S2Si2	0.07 to 0.15	0.40 to 0.60	0.80 to 1.30	0.020	0.025	0.15	0.15	0.15	0.30
S3Si	0.07 to 0.15	0.15 to 0.40	1.30 to 1.85	0.020	0.025	0.15	0.15	0.15	0.30
S4Si	0.07 to 0.15	0.15 to 0.40	1.85 to 2.25	0.020	0.025	0.15	0.15	0.15	0.30
S1Mo	0.07 to 0.15	0.05 to 0.25	0.35 to 0.60	0.025	0.025	0.45 to 0.65	0.15	0.15	0.30
S2Mo	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.025	0.025	0.45 to 0.65	0.15	0.15	0.30
S2MoTiB[d]	0.07 to 0.15	0.15 to 0.35	1.00 to 1.35	0.025	0.025	0.40 to 0.65	-	-	0.30
S3Mo	0.07 to 0.15	0.05 to 0.25	1.35 to 1.75	0.025	0.025	0.45 to 0.65	0.15	0.15	0.30
S4Mo	0.07 to 0.15	0.05 to 0.25	1.75 to 2.25	0.025	0.025	0.45 to 0.65	0.15	0.15	0.30
S2Ni1	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.020	0.020	0.15	0.80 to 1.20	0.15	0.30
S2Ni1,5	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.020	0.020	0.15	1.20 to 1.80	0.15	0.30
S2Ni2	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.020	0.020	0.15	1.80 to 2.40	0.15	0.30
S2Ni3	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.020	0.020	0.15	2.80 to 3.70	0.15	0.30
S2Ni1Mo	0.07 to 0.15	0.05 to 0.25	0.80 to 1.30	0.020	0.020	0.45 to 0.65	0.80 to 1.20	0.20	0.30
S3Ni1,5	0.07 to 0.15	0.05 to 0.25	1.30 to 1.70	0.020	0.020	0.15	1.20 to 1.80	0.20	0.30
S3Ni1Mo	0.07 to 0.15	0.05 to 0.25	1.30 to 1.80	0.020	0.020	0.45 to 0.65	0.80 to 1.20	0.20	0.30
S3Ni1Mo0,2	0.07 to 0.15	0.10 to 0.35	1.20 to 1.60	0.015	0.015	0.15 to 0.30	0.80 to 1.25	0.15	0.30
S3Ni1,5Mo	0.07 to 0.15	0.05 to 0.25	1.20 to 1.80	0.020	0.020	0.30 to 0.50	1.20 to 1.80	0.20	0.30
S2Ni1Cu	0.08 to 0.12	0.15 to 0.35	0.70 to 1.20	0.020	0.020	0.15	0.65 to 0.90	0.40	0.40 to 0.65
S3Ni1Cu	0.05 to 0.15	0.15 to 0.40	1.20 to 1.70	0.025	0.025	0.15	0.60 to 1.20	0.15	0.30 to 0.60
SZ[b]	Any other agreed composition								

Symbol for tensile properties(MPa)

Two-run		
Symbol	Minimum Parent material yield strength MPa	Minimum tensile strength of welded joint MPa
2T	275	370
3T	355	470
4T	420	520
5T	500	600

Two-run			
Symbol	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)
35	≥ 355	440-570	≥ 22%
38	≥ 380	470-600	≥ 20%
42	≥ 420	500-640	≥ 20%
46	≥ 460	530-680	≥ 20%
50	≥ 500	560-720	≥ 18%

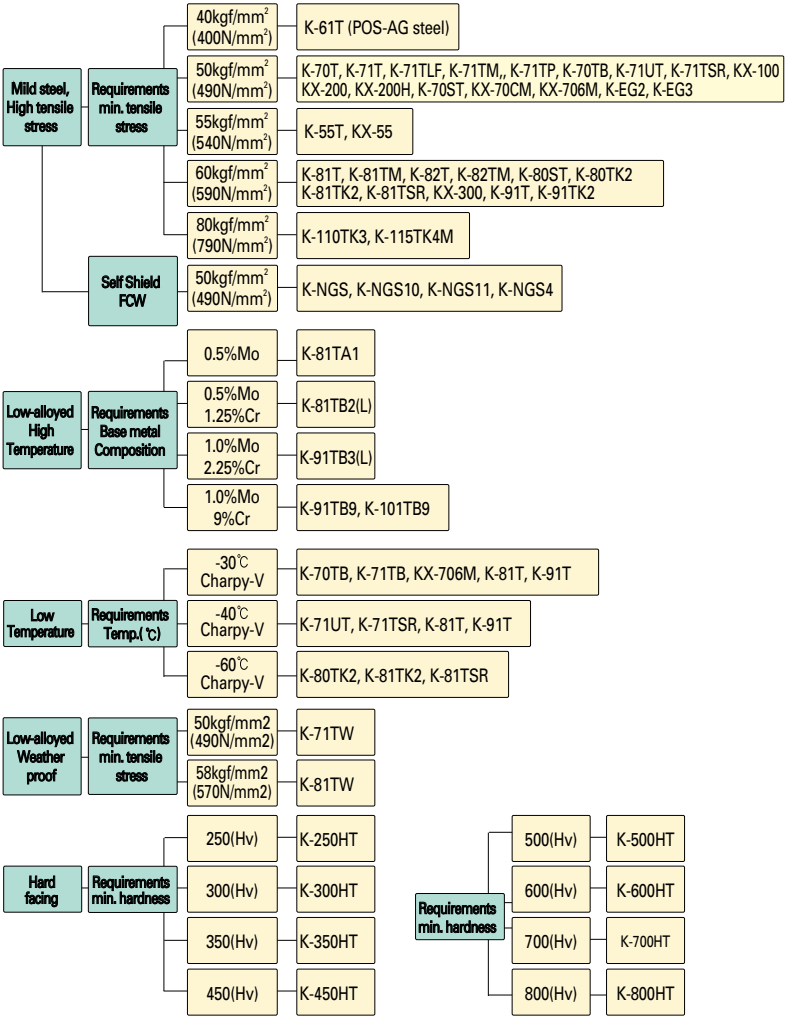
Submerged arc welding

List of drying Condtion for SMAW

–	Type of Covering	Product	water contents (%)	Temp. (℃)	Time (min)
mild steel	High cellulose	KCL-10 , KCL-11	6.0	70~80	30
	High titania	K- 6012, KR-3000 KR-3000V	3.0	70~100	30~60
	Iron oxide titania	KI-101LF	3.0	70~100	30~60
	High iron oxide, iron powder	KF-300LF	2.0	120~150	30~60
	lime titania	KT-303	3.0	70~100	30~60
	Low-hydrogen	KH-500LF, KH500VLF KH-500W, KH-500T	0.5	300~400	60~120
high tensile strength steel	High cellulose	K-7010G, K-8010 G	6.0	70~80	30
	Iron powder, titania	K-7014, K-7024	2.0	120~150	30~60
	Low-hydrogen	KK-50LF, K-7016HR KK-55, KK-60, KK-70	0.5	300~400	60~120
	Low-hydrogen iron powder	K-7018, K7018HR K-7018N, K-8018 K-9018M, K-10018D2	0.5	300~400	60~120
atmospheric corrosion resisting & low temperature service & heat-resisting steel	High cellulose	K-7010A1	6.0	70~80	30
	Low-hydrogen	KW-50G, K-7016A1 K-8016B2 , K-8016B8 K-8016C1, K-8016C4	0.5	300~400	60~120
	Low-hydrogen iron powder	KW-50WH, K-7018A1 K-9018B3, K-8018C3	0.5	300~400	60~120
hardfacing	High titania	KM-100, KM-300R	2.5	70~100	30~60
	lime titania	KSB-2 KOSPEL-800R	1.5	70~120	30~60
	Low-hydrogen	KM-300, KM-500 KM-700M, KM-900 KQD-600	0.5	300~400	60~120
stainless steel	lime	KST-307-15 KT-309Mo-15	0.5	250~350	30~60
	lime titania	KST-308, KST308L KST-309, KST-309L KST-316, KST-316L KST-410, KST-2209	1.5	250~350	30~60
cast iron	graphite	KL-100, KC-50 KFN-50, KSN-100	1.5	70~120	30~60
Submerged arc welding	agglomerated type	EF-100, EF-100H, EF-100S EF-200, EF-200K, EF-200V EF-200H, EF-200LT EF-200LT Plus, EF-200F EF-300N	0.1	250~350	60

WELDING CONSUMABLES GUIDANCE I

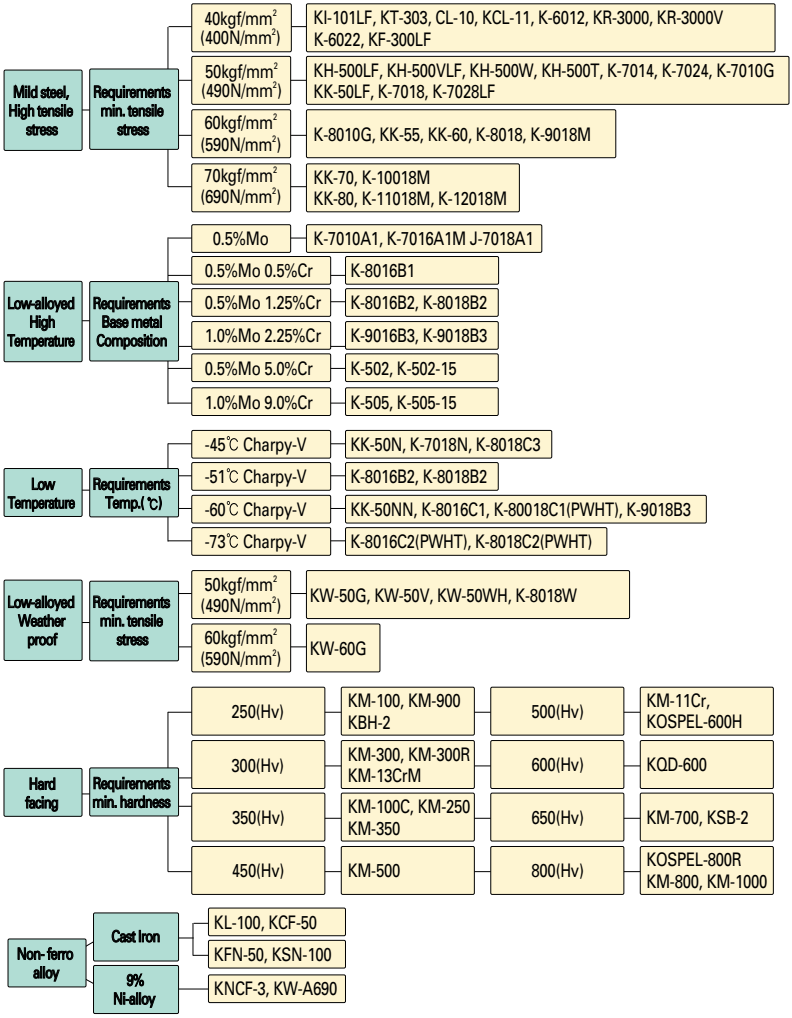
1. MAG Welding(Flux cored wire)



☞ Contact the technical research team on specific details (Tel : 055-269-7280)

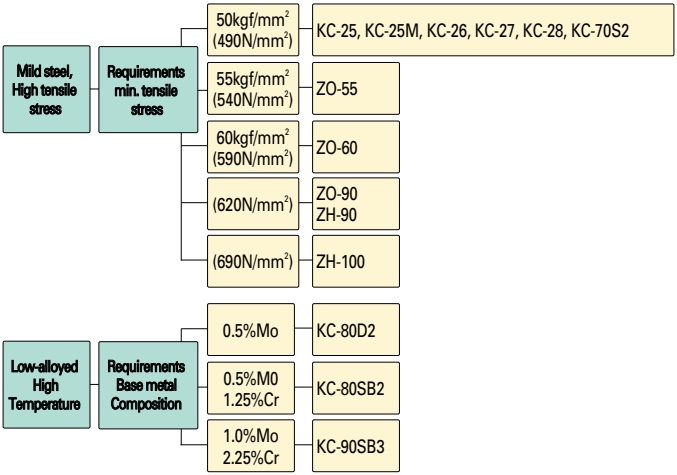
WELDING CONSUMABLES GUIDANCE Ⅰ

2. Manual electrode

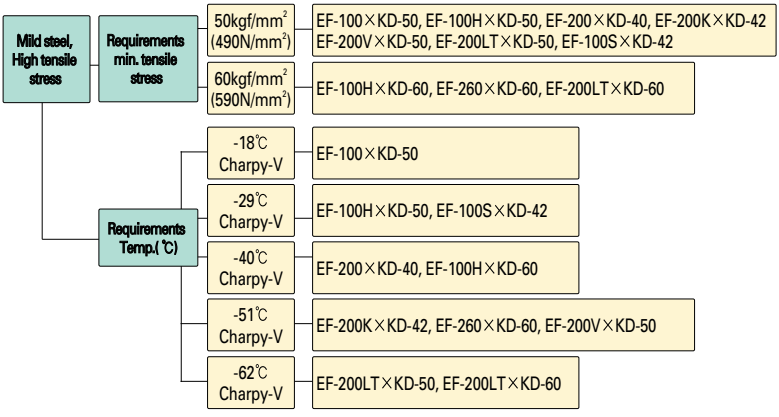


☞ Contact the technical research team on specific details (Tel : 055-269-7280)

3. MAG WELDING (Solid Wire)



4. SAW Flux & Wire



☞ Contact the technical research team on specific details (Tel : 055-269-7280)

WELDING CONSUMABLES GUIDANCE Ⅱ

Welding consumables and preheat conditions are recommended as followed

Base metal	13Mn alloy	Ni alloy	Ni-Cr-Mo alloy	Ni-Cr alloy	Cr-Mo alloy	High carbon steel ≥0.45%C	Middle carbon steel 0.25-0.45%C	Low carbon steel ≥0.25%C	13Cr/18Cr alloy	STS 304(L)
STS304(L)	E316/E309 room temp. ~50℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 150~150℃	E309/E310 room temp. ~50℃	E309/E310 room temp. ~50℃	E309/E310 150~250℃	E308(L)
13Cr/18Cr	E309/E310 50~150℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	
Low carbon steel < 0.25%C	E316/E309 room temp. ~50℃	E8016(8)/C1* room temp. ~50℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 room temp. ~50℃	E7016* room temp. ~50℃	E7016* room temp. ~50℃		
Middle carbon steel 0.25~0.45%C	E316/E309 room temp. ~50℃	E8016(8)/C1* room temp. ~50℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 room temp. ~50℃	E7016* 50~150℃			
High carbon steel ≥0.45%C	E316/E309 50~150℃	E309/E310 room temp. ~50℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃				
Cr-Mo alloy	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 150~250℃	E309/E310 150~250℃	E309/E310 150~250℃					
Ni-Cr alloy	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 150~250℃	E309/E310 150~250℃						
Ni-Cr-Mo alloy	E309/E310 50~150℃	E309/E310 50~150℃	E309/E310 150~250℃							
Ni alloy	E316/E309 room temp. ~50℃	E8016(8)/C1* room temp. ~50℃								
13Mn alloy	E316 room temp. ~50℃									

① * mark means FCAW products can be used more often if it is the same grade

WELDING CONSUMABLES GUIDANCE Ⅲ

Welding consumables and preheat conditions are recommended as followed

Base metal	STS430	STS410	STS405	STS403	STS347	STS321	STS317L	STS317	STS316L	STS316	STS310S	STS309	STS304L	STS304
STS304	E309	E309	E309	E309	E347	E347	E317L	E317L	E316L	E316	E309	E309	E308L	E308
STS304L	E309L	E309L	E309L	E309L	E347	E347	E317L	E317L	E316L	E316L	E309L	E309L	E308L	
STS309	E309	E309	E309	E309	E309	E309	E309Mo	E309Mo	E309Mo	E309Mo	E309	E309		
STS310S	NiCrFe-3	NiCrFe-3	NiCrFe-3	NiCrFe-3	NiCrFe-3	NiCrFe-3	E309Mo	E309Mo	E309Mo	E309Mo	E310			
STS316	E309Mo	E309Mo	E309Mo	E309Mo	E306L	E306L	E317L	E317L	E316L	E316				
STS316L	E309MoL	E309MoL	E309MoL	E309MoL	E316L	E316L	E317L	E317L	E316L					
STS317	E309Mo	E309Mo	E309Mo	E309Mo	E317L	E317L	E317L	E317L						
STS317L	E309MoL	E309MoL	E309MoL	E309MoL	E317L	E317L	E317L							
STS321	E309	E309	E309	E309	E347	E347								
STS347	E309	E309	E309	E309	E347									
STS403	E410	E410	E410	E410										
STS405	E430	E430	E430											
STS410	E410	E410												
STS430	E430													

WELDING CONSUMABLES GUIDANCE Ⅳ

Welding consumables and preheat conditions are recommended as followed

<table>
<tr><th>Base metal</th><th colspan="2">STB-35</th><th>STB-42B</th><th>STBA-12 (0.5Mo)</th><th>STBA-22 (1Cr-0.5Mo)</th><th>STBA-23 (1.25Cr-0.5Mo)</th><th>STBA-24 (2.25Cr-1Mo)</th><th>STS410 TB (13Cr)</th><th>STS304TB (18Cr-8Ni)</th><th>STS321TB (18Cr-8Ni-Ti)</th><th>STS316TB (18Cr-12N -Mo)</th><th>STS310TB (25Cr-20Ni)</th><th>STS347TB (18Cr-8N-Nb)</th></tr>
<tr><td>STS 347TB (18Cr-8Ni-Nb)</td><td colspan="3">E7016
150~250/620</td><td>E309
100~200/
620</td><td colspan="2">E309
100~200/620~720</td><td>E309
150~250/
700~740</td><td rowspan="5">E309
100~200/
700~760</td><td>E308</td><td>E347</td><td>E316/E308</td><td>E347</td><td>E347</td></tr>
<tr><td>STS310STB (25Cr-20Ni)</td><td colspan="3">E310/E309</td><td>E309(310)
100~200/
620</td><td colspan="2">E309/E309
100~200/620~720</td><td>E310/E309
150~250/
700~740</td><td>E310</td><td colspan="2">E347/E316</td><td>E310</td><td></td></tr>
<tr><td>STS316TB (18Cr-12Ni-Mo)</td><td colspan="3">E309/309Mo</td><td>E309(Mo)
100~200/
620</td><td colspan="2">E309/E309Mo
100~200/620~720</td><td>E309/E309Mo
150~250/
700~740</td><td>E310(316)</td><td colspan="2">E316</td><td></td><td></td></tr>
<tr><td>STS321TB (18Cr-8Ni-Ti)</td><td colspan="3" rowspan="2">E309</td><td rowspan="2">E309
100~200/
620</td><td colspan="2" rowspan="2">E309
100~200/620~720</td><td rowspan="2">E309
150~250/
400~740</td><td rowspan="2">E308</td><td>E347</td><td></td><td></td><td></td></tr>
<tr><td>STS304TB (18Cr-8Ni)</td><td colspan="4"></td><td></td><td></td><td></td><td></td></tr>
<tr><td>STS410TB (13Cr)</td><td colspan="4">E430/E309
100~200/620*</td><td colspan="2">E309/E309
100~200/620~720</td><td>E430/E309
100~200/
700~740*</td><td></td><td colspan="4"></td></tr>
<tr><td>STBA-24 (1.25Cr-1Mo)</td><td colspan="3">E7016
150~250/620</td><td>E7016-A1
150~250/
620</td><td colspan="2">E8016(8)-B2
150~250/690~720</td><td>E9016(8)-B3
150~250/
700~740</td><td colspan="5"></td></tr>
<tr><td>STBA-23 (1.25Cr-0.5Mo)</td><td colspan="3" rowspan="2">E7016
100~200/620</td><td rowspan="3">E7016-A1
100~200/
620</td><td>E8016(8)
-B2
100~200/
690~720</td><td>E8016(8)-B2
100~200/
690~720</td><td colspan="6" rowspan="3"></td></tr>
<tr><td>STBA-22 (1Cr-0.5Mo)</td><td colspan="2"></td></tr>
<tr><td>STBA-12 (0.5Mo)</td><td colspan="3">E7016
100/620</td><td colspan="2"></td></tr>
<tr><td>STB-42B</td><td>E7016</td><td>E6019/
E7016</td><td colspan="8" rowspan="2"></td></tr>
<tr><td>STB-35</td><td colspan="2">E6019</td></tr>
</table>

① Figures mean the pre. H and PWHT temperature(℃)
② E309 type can be left out PWHT, if it is necessary
③ It can be possible for FCAW, and Solid wire to be usedinstead of SMAW
- E7016 : E71T-1, ER70S-G
- E7016-A1 : E81T1-A1, ER80S-D2
- E8016-B2 : E81T1-B2, ER80S-B2
- E9016-B3 : E91T1-B3, ER90S-B3

WELDING CONSUMABLES GUIDANCE Ⅴ

Welding consumables and preheat conditions are recommended as followed

Base metal	Cu	Brass (Cu-Zn)	Bronze (Cu-Si)	Bronze (Cu-Sn-P)	Bronze (Cu-Al)	Bronze (Cu-Ni)	Bronze (Cu-Be)	Carbon steel	Cast Iron	STS	Tool steel	Mn alloy
Ni alloy	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 427~538℃	ECuSi/ ECuSn–A/ ECuAl–A 66℃	ECuSn–A 204℃	ECuAl–A 204℃	ECuNi–A/ ECuAl–A 66℃	ECuAl–A/ ECuSn–A 371℃	ECuAl	ECuAl–A/ ECuSn–A 204℃	ECuAl–A 149℃	ECuAl–A 371℃	ECuAl–A 149℃
Mn alloy	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuSn–A/ ECuAl–A 66℃	ECuSn–A 204℃	ECuAl–A 204℃	ECuNi–A/ ECuAl–A 66℃	ECuAl–A/ ECuSn–A 371℃	ECuAl–A 149℃	ECuAl–A/ ECuSn–A 204℃	ECuAl–A 149℃	ECuAl–A 371℃	ECuAl–A 149℃
Tool steel	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 371℃	ECuSi/ ECuSn–A/ ECuAl–A 371℃	ECuSn–A 371℃	ECuAl–A 371℃	ECuNi–A/ ECuAl–A 371℃	ECuAl–A/ ECuSn–A 371℃	ECuAl–A 371℃	ECuAl–A/ ECuSn–A 371℃	ECuAl–A 371℃	ECuAl–A 371℃	
STS	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuSn–A/ ECuAl–A 66℃	ECuSn–A 204℃	ECuAl–A 204℃	ECuNi–A/ ECuAl–A 66℃	ECuAl–A/ ECuSn–A 371℃	ECuAl–A	ECuAl–A/ ECuSn–A 204℃			
Cast Iron	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuSn–A/ ECuAl–A 204℃	ECuSn–A 204℃	ECuAl–A ECuSn–S 260℃	ECuNi–A/ ECuAl–A 204℃	ECuSn–A/ ECuAl–A 371℃	ECuSn–A/ ECuAl–A 204℃	ECuAl–A/ ECuSn–A 204℃			
Carbon steel	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuSn–A/ ECuAl–A 66℃	ECuSn–A 204℃	ECuAl–A 371℃	ECuNi–A/ ECuAl–A 66℃	ECuAl–A/ ECuSn–A 371℃					
Bronze (Cu-Be)	ECuSn–A 427~538℃	ECuSn–A/ ECuAl–A 371℃	ECuSi/ ECuAl–A 371℃	ECuSn–A/ ECuSi 371℃	ECuAl–A 204℃	ECuAl–A/ ECuNi 371℃	Bronge (Cu–Be) 371℃					
Bronze (Cu-Ni)	ECuNi/ ECuSn-A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuNi 204℃	ECuSn–A/ ECuSi 204℃	ECuAl–A 204℃	ECuNi 66℃						
Bronze (Cu-Al)	ECuNi/ ECuSn-A 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi/ ECuAl–A 66℃	ECuSn–A 204℃	ECuAl–A 204℃							
Bronze (Cu-Sn-P)	ECuSn-A/ ECuSi 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSn–A/ ECuSi 204℃	ECuSn–A 204℃								
Bronze (Cu-Si)	ECuSi 427~538℃	ECuSn–A/ ECuAl–A 260℃	ECuSi 66℃									
Brass (Cu-Zn)	ECuSn-A/ ECuSi 427~538℃	ECuSn–A/ ECuSi/ ECuAl–A 260℃										
Cu	ECu/ ECuSn-A/ ECuSi 427~538℃											

① ECuSn-C type can be used instead of ECuSn-A type.

WELDING CONSUMABLES GUIDANCE VI

Selection Guide For Copper Alloy Welding

Welding consumables and preheat conditions are recommended as followed

Base metal	Low alloy	Carbon steel	Cast steel	Cu-Sn Bronze	Cu-Al Bronze	Cu-Sn-P Bronze	Cu-Si Bronze	Cu-Zn Brass	Cu
Cu	1 F	1 F	1/3 F	1/4/3 F	3 F	1/3 F	1/3 F	1/3 F	1 F
Cu-Zn Brass	4/3 D	4/3 D	4/3 D	3/1 D	4/3 D	3/4 D	3/4 D	3/4/1 D	
Cu-Si Bronze	3/1/2 A	3/4/2 A	3/4/2 A	3 B	2/4 B	3/2 B	2 A		
Cu-Sn-P Bronze	3/4 B	3/4 B	3/4 B	3/1 B	3/4 B	3 B			
Cu-Al Bronze	4/3 C	4/3 C	4/3 C	4 C	4 C				
Cu-Sn Bronze	3 B	3 B	3 B	3 B					

Filler metal	
1	Ecu / ERCu
2	ECuSi / ERCuSi–A
3	ECuSn–A ECuSn–C / ERCuSn–A
4	DCuAlNi / (ERCuNiAl)

Preheat / Interpass temperature			
A	70℃	D	250~300℃
B	150~200℃	E	300~400℃
C	200~250℃	F	400~550℃

WELDING CONSUMABLES GUIDANCE VII

Selection Guide For Aluminum Welding

Base metal / Base metal	201.0 206.0 224.0	319.0, 333.0 354.0, 355.0 C355.0	356.0, A356.0 357.0, A357.0 413.0, 443.0 A444.0	511.0, 512.0 513.0, 514.0 535.0	7004, 7005 7039, 710.0 712.0	6009 6010 6070	6005, 6061 6063, 6101 6151, 6201 6351, 6951	5456	5454	5154 5254[j]
1060, 1070, 1080, 1350	ER4145	ER4145	ER4043[a, b]	ER5356[c, d]	ER5356[c, d]	ER4043[a, b]	ER4043[b]	ER5356[d]	ER4043[b, d]	ER5356[c, d]
1100, 3003, Al-3003	ER4145	ER4145	ER4043[a, b]	ER5356[c, d]	ER5356[c, d]	ER4043[a, b]	ER4043[b]	ER5356[d]	ER4043[b, d]	ER5356[c, d]
2014, 2036	ER4145[e]	ER4145[e]	ER4145	-	-	ER4145	ER4145	-	-	-
2219	ER2319[a]	ER4145[e]	ER4145[b, c]	ER4043	ER4043	ER4043[a, b]	ER4043[a, b]	-	ER4043[b]	ER4043
3004, Al-3004	-	ER4043[b]	ER4043[b]	ER5356[f]	ER5356[f]	ER4043[b]	ER4043[b, f]	ER5356[d]	ER5356[f]	ER5356[f]
5005, 5050	-	ER4043[b]	ER4043[b]	ER5356[f]	ER5356[f]	ER4043[b]	ER4043[b, f]	ER5356[d]	ER5356[f]	ER5356[f]
5052, 5652[c]	-	ER4043[b]	ER4043[f]	ER5356[f]	ER5356[f]	ER4043[b]	ER5356[c, f]	ER5356[f]	ER5356[f]	ER5356[f]
5083	-	-	ER5356[c, d]	ER5356[d]	ER5183[d]	-	ER5356[d]	ER5356[d]	ER5183[f]	ER5356[d]
5086	-	-	ER5356[c, d]	ER5356[d]	ER5356[d]	-	ER5356[d]	ER5356[d]	ER5356[d]	ER5356[d]
5154, 5254[i]	-	-	ER4043[f]	ER5356[f]	ER5356[f]	-	ER5356[f]	ER5356[f]	ER5356[f]	ER5356[f, i]
5454	-	ER4043[b]	ER4043[f]	ER5356[f]	ER5356[f]	ER4043[b]	ER5356[c, f]	ER5356[f]	ER5356[c, f]	
5456	-	-	ER5356[c, d]	ER5356[d]	ER5556[d]	-	ER5356[d]	ER5356[d]		
6005, 6061, 6063 6101, 6151, 6201 6351, 6951	ER4145	ER4145[b, c]	ER4043[b, f, g]	ER5356[f]	ER5356[c, f]	ER4043[a, b, g]	ER4043[b, f, g]			
6009, 6010, 6070	ER4145	ER4145[b, c]	ER4043[a, b, g]	ER4043	ER4043	ER4043[a, b, g]				
7004, 7005, 7039 710.0, 712.0	-	ER4043[b]	ER4043[b, f]	ER5356[f]	ER5356[d]					
511.0, 512.0, 513.0 514.0, 535.0	-	-	ER4043[f]	ER5356[f]						
356.0, A356.0, 357.0 A357.0, 413.0, 443.0 A444.0	ER4145	ER4145[b, c]	ER4043[b, h]							
319.0, 333.0, 354.0 355.0, C355.0	ER4145[c]	ER4145[b, c, h]								
201.0, 206.0, 224.0	ER2319[a, h]									

a ER4145 can also be used in some applications.
b ER4047 can also be used in some applications.
c ER4043 can also be used in some applications.
d ER5183, ER5336 or ER5556 may also be used.
e ER2319 can also be used in some applications.
f ER5183, ER5356, ER5554, ER5556 and ER5654 can also be used.

Base metal / Base metal	5086	5083	5052 5356[i]	5005 5050	3004 Alc.3004	2219	2014 2036	1100 3003 Alc.3003	1060 1070 1080 1350
1060, 1070, 1080, 1350	ER5356[d]	ER5356[d]	ER4043[b, d]	ER1100[b, c]	ER4043[b, d]	ER4145[b, c]	ER4145	ER1100[b, c]	ER1188[b, c, h, j]
1100, 3003, Alᶜ3003	ER5356[d]	ER5356[d]	ER4043[b, d]	ER1100[b, c]	ER4043[b, d]	ER4145[b, c]	ER4145	ER1100[b, c]	
2014, 2036	-	-	-	ER4145	ER4145	ER4145[e]	ER4145[e]		
2219	-	-	ER4043[b]	ER1100[a, b]	ER4043[a, b]	ER2319[a]			
3004, Alᶜ3004	ER5356[d]	ER5356[d]	ER5356[c, f]	ER5356[c, f]	ER5356[c, f]				
5005, 5050	ER5356[d]	ER5356[d]	ER5356[c, d]	ER5356[c, f]					
5052, 5652[i]	ER5356[d]	ER5356[d]	ER5654[c, f, i]						
5083	ER5356[d]	ER5183[d]							
5086	ER5356[d]								
5154, 5254[j]									
5454									
5456									
6005, 6061, 6063 6101, 6151, 6201 6351, 6951									
6009, 6010, 6070									
7004, 7005, 7039 710.0, 712.0									
511.0, 512.0, 513.0 514.0, 535.0									
356.0, A356.0, 357.0 A357.0, 413.0, 443.0 A444.0									
319.0, 333.0, 354.0 355.0, C355.0									
201.0, 206.0, 224.0									

g ER4643 and ER4943 provide higher tensile strength than ER4043 and are used for solid solution and aging treatment after welding thick 6XXX base metal.

h In some cases, the same welding material as the base material is used.

i Base alloys 5254 and 5652 are used in hydrogen peroxide related fields. ER5654 is used for welding base metals used at temperatures below 66℃.

j ER1100 can also be used in some applications.

MEMO

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

The following lists the KISWEL LTD. filler metals which can be used to weld the following ASTM steels. Those steels which have been discontinued as of 1990 in the ASTM Book of Standards, have been deleted. Properties and chemical compositions of deposits can change depending on your specific welding conditions. No attempt has been made to recommend welding procedures since they vary with the process being used, metal thickness, carbon content, alloy content and other factors. When more than one filler metal is listed, consult the individual product listings in this booklet and select the one most suitable for your application.

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A1-84	ALL-WEIGHTS	STAINLESS	KST-310	M-310	
A2-80	ALL-CLASSES	STAINLESS		M-310	
A3-87	1, 2	STEEL	KCL-10,11 KR-3000	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A27-87	ALL	STEEL	K-7014, K-7024 K-7018	KC-25~KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A36-88b		STEEL	K-6012, KR-3000 K-7014, K-7024	KC-25~ KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A47-84		NICKEL STEEL	K-7018		
A48-83		NICKEL STEEL			
A49-87		STEEL			
A53-88a		STEEL	KCL-10, KCL-11	KC-25, KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A67-84	1	STEEL	K-7018	ZO-60	
	2	STEEL			
A74		NICKEL STEEL			
A82-88		STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A105-87a		STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A106-88a	A & B C		K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A108-81	1008-1020	STEEL	KCL-10	KC-25~ KC-28	KX-100, KX-200 K-71T, K-70TM
	1022-1215	STEEL	K-7018	KC-28	K-71T, K-70TB, K-71TM
A109-88	ALL	STEEL	K-7018 K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A123-84		STEEL	KCL-10, K-7018	KC-28	
A126-84		NICKEL STEEL			
A128-86		NICKEL STEEL			
A131-88	A thru DS		K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	A,B,D,DS, AH32 AH36,DH32,DH36	LOW ALLOY	K-8018C2 K-8018C3		K-80TK2, K-81TK2
A134-85		STEEL	KCL-10	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A135-88	A & B	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A139-88	A11	STEEL	K-7018	KC-28	KX-100, KX-200 K-7OTB, K-71T, K-71TM
A148-84	80-40, 80-50	STEEL	K-8018C1 K-8018C2	KC-80D2	
	90-60		K-9018M		
	105-85				
	115-95	LOW ALLOY	K-12018M		
	135-125	ALLOY STEEL			
A159-83	ALL	NICKEL STEEL			
A161-88	LOW CARBON	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	T-1	Cr/Mo	K-7018A1		
A167-88	302B, 301, 302		KST-308	M-308	K-308T
	304, 305, 308	STAINLESS	KST-308L	M-308L	K-308LT
	304L	STAINLESS	KST-308L	M-308L	K-308LT
	309S, 309	STAINLESS	KST-309, KST-309L	M-309, M-309L	K-309T, K-309LT
	309Cb	STAINLESS			
	310S, 310	STAINLESS	KST-310	M-310	
	316, 316L	STAINLESS	KST-316, KST-316L	M-316, M-316L	K-316T, K-316LT
	317, 317L	STAINLESS	KST-317, KST-317L		K-317LT
A176-87	403, 405, 409 410, 4105	STAINLESS	KST-410	M-410	K-410T
	430	STAINLESS	KST-430	M-430	
	442, 446	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
A178-87	A & C	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A179-88		STEEL	KCL-10, KCL-11 K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A181-87	60 & 70	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A182-88	F1 F2, F11, F12	C/Mo C/Mo	K-7018A1 K-8018B2	KC-80D2	

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A182-88	F5, F5a	C/Mo	KST-309, KST-310	M-309, M-310	K-309T
	F6a classes 1&2	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	F21, F22, F22a		KST-410	M-410	K-410T
	F429, F430	LOW ALLOY	K-9018B3		K-91TB3
	F304, F304H, F304N	STAINLESS	KST-430	M-430	
	F304L, F304LN	STAINLESS	KST-308	M-308	K-308T
	F310	STAINLESS	KST-308L	M-308L	K-308LT
	F316, F316H, F316N	STAINLESS	KST-310	M-310	
	F316L, F316LN	STAINLESS	KST-316	M-316	K-316T
	F317	STAINLESS	KST-316L	M-316L	K-316LT
	F317L	STAINLESS	KST-317		
	F321, F321H	STAINLESS	KST-317L		K-317LT
	F347H, F348	STAINLESS			
	F347, F348H	STAINLESS	KST-347	M-347	K-347T
A192-88		STEEL	K-7018	KC-25	KX-100, KX-200
	B5				K-71T, K-71TM
A193-88	B6, B6X	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	B7, B7X	STAINLESS	KST-410	M-410	K-410T
	B16	LOW ALLOY	K-8018B2		
	B8, B8A	LOW ALLOY	K-9018B3		
	B8C,C8CA,B8T,B8TA	STAINLESS	KST-308	M-308	K-308T
	B8M,B8MA,B8M2,B8	STAINLESS	KST-347	M-347	K-347T
	M3	STAINLESS	KST-316	M-316	K-316T
A199-88 &	T-4	STAINLESS		M-309	
A200-88			KST-309, KST-310	M-310	
	T-5	STAINLESS			
	T-7, T-9	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	T-11	LOW ALLOY	K-8018B2		
	T-21	STAINLESS	KST-309	M-309	K-309T
			KST-310	M-310	
	T-22	LOW ALLOY	K-9018B3		K-309T
A202-82	A	LOW ALLOY	K-8018B2		K-81TB2
	B	LOW ALLOY	K-9018B3		K-91TB3
A203-82	D, E, F	NICKEL STEEL			
	A, B	NICKEL STEEL			
A204-88	A, B	C/Mo	K-7018A1		
	C	LOW ALLOY	K-11018M		
A209-88	ALL	STEEL	K-7018A1		
A210-88	ALL	STEEL	K-7018	KC-28	KX-100, KX-200, K-71T, K-71TM
A211-75		STEEL	K-7018	KC-28	KX-100, KX-200, K-71T, K-71TM
A213-88a	T2, T11, T12, T17	Cr/Mo	K-8018B2		
	T5, T5B, T5C	Cr/Mo	KST-309, KST-310	M-309, M-310	K-309T

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A213-88a	T9, T7	Cr/Mo	KST-309, KST-310	M-309, M-310	K-309T
	T21	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	T22	LOW ALLOY	K-9018B3		
	TP201,TP202,TP304	STAINLESS	KST-308	M-308	K-308T
	TP309Cb	STAINLESS	KST-309	M-309	K-309T
	TP304L	STAINLESS	KST-308L	M-308L	K-308LT
	TP310Cb	STAINLESS			
	TP316, TP316L	STAINLESS	KST-316, KST-316L	M-316, M-316L	K-316T, K-316LT
A214-88		STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A216-84b	WCA	STEEL (CASTING)	K-7018	KC-25, KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	WCB, WCC	STEEL	K-7018A1 K-9018M	KC-80D2	
A217-87	WC1	Cr/Mo	K-7018A1		
	WC4,WC5,WC6,W11	Cr/Mo	K-8018B2		K-81TB2
	WC9	Cr/Mo	K-9018B3		K-91TB3
	C5	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
A220-88	ALL	NICKEL STEEL			
A225-86	C	LOW ALLOY	K-11018M		
	D	LOW ALLOY	K-11018M		
A226-88		STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A234-88b	WPB, WPC	STEEL	K-7018		KX-100, KX-200 K-71T, K-70TB, K-71TM
	WP1	STEEL	K-7018A1		
	WP11, WP12	STEEL	K-8018B2		K-81TB2
	WP22	STEEL	K-9018B3		K-91TB3
	WP5	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	WPR	STEEL		ZO-60	K-71TW
A240-88c	201,202,302,304,305	STAINLESS	KST-308	M-308	K-308T
	309S	STAINLESS	KST-309	M-309	K-309T
	309Cb	STAINLESS			
	310S	STAINLESS	KST-310	M-310	
	310Cb	STAINLESS			
	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		K-317LT
	317L	STAINLESS	KST-317L		K-317LT
	321, 347, 348	STAINLESS	KST-347	M-347	K-347T
	410	STAINLESS	KST-410	M-410	K-410T

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A240-88c	430	STAINLESS	KST-430	M-430	
A242-88	ALL	STEEL	K-8018C2	Z0-60	
A249-88a	201,202,304,305	STAINLESS	KST-308	M-308	K-308T
	304L	STAINLESS	KST-308L	M-308L	K-308LT
	309Cb	STAINLESS			
	310Cb	STAINLESS			
	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		K-317LT
	317L	STAINLESS	KST-317L		K-317LT
	321, 347, 348	STAINLESS	KST-347	M-347	K-347T
A250-88a	T1, T1a, T1b	STEEL	K-7018A1		
	T2	STEEL	K-8018B2		
	T-11	STEEL	K-8018B2		K-81TB2
	T-22	STEEL	K-9018B3		K-91TB3
A252-88	ALL	STEEL	KCL-10, KCL-11 K-7018	KC-25	KX-100, KX-200 K-71T, K-70TB, K-71TM
A266-88	1	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	2, 3, 4	STEEL		KC-28	
A268-88a	TP410	STAINLESS	KST-410	M-410	K-410T
	TP430	STAINLESS	KST-430	M-430	
A269-88	304	STAINLESS	KST-308	M-308	K-308T
	304L	STAINLESS	KST-308L	M-308L	K-308LT
	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		
	321,347,348	STAINLESS	KST-347	M-347	K-347T
A270-88a	TP304	STAINLESS	KST-308	M-308	K-308T
	TP304L	STAINLESS	KST-308L	M-308L	K-308LT
	TP316	STAINLESS	KST-316	M-316	K-316T
	TP316L	STAINLESS	KST-316L	M-316L	K-316LT
A271-88	TP304	STAINLESS	KST-308	M-308	K-308T
	TP304H	STAINLESS			
	TP316	STAINLESS	KST-316	M-316	K-316T
	TP316H	STAINLESS			
	TP321, 347	STAINLESS	KST-347	M-347	K-347T
A276-89	201,202,302,304,308	STAINLESS	KST-308	M-308	K-308T
	304L, 305	STAINLESS	KST-308L	M-308L	K-308LT
	309	STAINLESS	KST-309	M-309	K-309T
	309Cb	STAINLESS			
	310	STAINLESS	KST-310	M-310	
	310Cb	STAINLESS			

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A276-89	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		
	321, 347, 348	STAINLESS	KST-347	M-347	K-347T
	403,405,410,414,421	STAINLESS	KST-410	M-410	K-410T
	430	STAINLESS	KST-430	M-430	
	446	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
A278-85	ALL	NICKEL			
A283-87	A, B, C	STEEL	KCL-10, K-7018	KC-25	KX-100, KX-200 K-71T, K-70TB, K-71TM
	D	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A284-88	C, D	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018, K-7024K-7018	KC-25 KC-28 KC-25, KC-28	KX-100, KX-200, K-71T K-70TB, K-71TMKX-100 KX-200
A285-85 (1987)	A, B, C	STEEL		KC-25 KC-28	K-71T, K-70TB, K-71TM
A288-77 (1982)	1	STEEL	K-7018, K-8018		KX-100, KX-200 K-71T, K-70TB, K-71TM
	2	LOW ALLOY	K-9018M, K-8018B2		
	3	LOW ALLOY	K-11018M		
	4	LOW ALLOY	K-12018M		
	5, 6, 7, 8	ALLOY STEEL			
A289-88	B & C	STAINLESS	KST-310	M-310	
A290-85	A, B	STEEL	K-7018	KC-28	KX-100, KX-200, K-71T
	C, D	STEEL	K-8018B2		K-70TB, K-71TM
	E, F	STEEL	K-11018M		
	G, H	STEEL	K-12018M		
	I, J	STEEL			
	K, L	STEEL	KST-310	M-310	
A291-84	1	STEEL	K-8018C3		K-81T
	2, 3	STEEL			
	4	STEEL	K-11018M		
	5, 6, 7	STAINLESS			
A297-84	HF	STAINLESS	KST-308	M-308	K-308T
	HH	STAINLESS	KST-309	M-309	K-309T
	HI, HK	STAINLESS	KST-310	M-310	
	HE, HD	STAINLESS	KST-312		
A299-82		LOW ALLOY	K-7018A1 K-7018, K-8018B2		KX-100, KX-200 K-71T, K-70TB, K-71TM
A302-82	A	STEEL	K-7018A1	KC-28	K-81T
	B	STEEL	K-8018B2	KC-80D2	K-81T
	C & D		K-9018M	KC-80D2	K-80TK2, K-81T

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A307-88a	A	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A311-86	1018, 1117	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-70TB, K-71TM
	ALL OTHERS	STAINLESS	KST-308	KC-80D2	
A312-88a	TP304, TP304H	STAINLESS		M-308	K-308T
	TP304H	STAINLESS	KST-308L	M-308H	
	TP304L, TP304LN	STAINLESS		M-308L	K-308LT
	TP309Cb	STAINLESS	KST-309		
	TP309S, 309H	STAINLESS		M-309	K-309T
	TP310Cb	STAINLESS			
	TP316, TP316H	STAINLESS	KST-316	M-316	K-316T
	TP316L	STAINLESS	KST-316L	M-316L	K-316LT
	TP317	STAINLESS	KST-317		
	TP317L	STAINLESS	KST-317L		K-317LT
	TP321,347,348	STAINLESS	KST-347	M-347	K-347T
	321H,347H,348H	STAINLESS			
A314-87a	202,302,302B	STAINLESS	KST-308	M-308	K-308T
	303,304,305,308				
	309,309S	STAINLESS	KST-309, KST-309L	M-309, M-309L	K-309T, K-309LT
	309Cb	STAINLESS			
	310,310S,314	STAINLESS	KST-310	M-310	
	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		
	321,347,348	STAINLESS	KST-347	M-347	K-347T
	429,430,431	STAINLESS	KST-430	M-430	
	403,410,414,416	STAINLESS	KST-410	M-410	K-410T
	416SE,420	STAINLESS		M-420	
	440A,440B,440C	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
	501,502	STAINLESS	KST-309 KST-310	M-309 M-310	K-309T
A319-71 (1985)		NICKEL STEEL			
A321-81 (1988)		STEEL	K-9018M, K-10018M K-11018M	KC-80D2	
A325-88a	I	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	II	STEEL	K-12018M	KC-25 KC-28	
A328-88a	Plates, Bars Shapes	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018, K-8018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A333-88a	1 & 6	LOW ALLOY	KCL-10, K-7018 KCL-11	KC-25, KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A333-88a	3 & 7		K-8018C2		
	4			ZO-60	
A334-88	1 & 6	LOW ALLOY	KCL-10, KCL-11 K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	3 & 7	LOW ALLOY	K-8018C2		
A335-88a	P1, P15	Cr/Mo	K-7018A1		
	P2, P11, P12	Cr/Mo	K-8018B2		
	P5, P5b, P5C	Cr/Mo	KST-309 KST-310	M-309 M-310	K-309T
	P21, P22	Cr/Mo	K-9018B3		
A336-88a	F1	LOW ALLOY	K-7018A1		
	F5, F5A	Cr/Mo	KST-309, KST-310	M-309, M-310	K-309T
	F6	STAINLESS	KST-309, KST-310 KST-410	M-309, M-310 M-410	K-309T, K-310T
	F21,F21A,F22,F22A	Cr/Mo	K-9018B3		K-91TB3
	F11,F11A,F11B,F12	Cr/Mo	K-8018B2		K-81TB2
	F304,304H,304N	STAINLESS	KST-308	M-308	K-308T
	F304L,304LN	STAINLESS	KST-308L	M-308L	K-308LT
	F309H	STAINLESS	KST-309	M-309	K-309T
	F310	STAINLESS	KST-310	M-310	
	F316	STAINLESS	KST-316	M-316	K-316T
	F316L	STAINLESS	KST-316L	M-316L	K-316LT
	F316H	STAINLESS			
	F321,347,348	STAINLESS	KST-347	M-347	K-347T
A338-84		NICKEL STEEL			
A350-87a	LF1,LF2,LF5,LF6	NICKEL STEEL	K-8018C3		K-81T
	LF3	NICKEL STEEL	K-8018C2		
	LF6	NICKEL STEEL	K-8018C3		K-308T
A351-88	CF8,CF8A,CF8C,CF10	STAINLESS	KST-308	M-308	K-308LT
	CF3,CF3A	STAINLESS	KST-308L	M-308L	K-309T
	CH8,CH10,CH20	STAINLESS	KST-309	M-309	K-316T
	CF8M,CF10M	STAINLESS	KST-316	M-316	
	CK20,HK30,HK40	STAINLESS	KST-310	M-310	
	CN7M	STAINLESS			
A361-85			KCL-10		K-NGS, K-NGS11
A352-88	LCA, LCB	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	LCC	STEEL	K-8018C3		
	LC1	STEEL	K-7018A1		
	LC2	NICKEL STEEL	K-8018C1		
	LC2-1	NICKEL STEEL	K-12018M		
	LC3	NICKEL STEEL	K-8018C2		
	CA6NM	NICKEL STEEL			

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A353-87		STAINLESS		M-310	K-310T
A356-84	1	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	2	Cr/Mo	K-7018A1		
	5, 6, 8, 9	Cr/Mo	K-8018B2		K-81TB2
	10	Cr/Mo	K-9018B3		K-91TB3
	CA6NM	LOW ALLOY			
A358-88a	304, 304N	STAINLESS	KST-308	M-308	K-308T
	304L, 304LN	STAINLESS	KST-308L	M-308L	K-308LT
	304H	STAINLESS		M-308H	
	309	STAINLESS	KST-309	M-309	K-309T
	309Cb	STAINLESS			
	310	STAINLESS	KST-310	M-310	
	310Cb	STAINLESS			
	316, 316N	STAINLESS	KST-316	M-316	K-316T
	316L, 316LN	STAINLESS	KST-316L	M-316L	K-316LT
	316H	STAINLESS			
	321, 347, 348	STAINLESS	KST-347	M-347	K-347T
A361-85		STEEL	KCL-10, K-7018	KC-28	KX-100, KX-200, K-71T,K-71TM
A366-85		STEEL	KCL-10, KCL-11 KR-3000, K-7014 K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
A369-88	FPA, FPB	LOW ALLOY	K-7018	KC-28	KX-100, KX-200,
	FP1	Cr/Mo	K-7018A1	KC-80D2	K-71T, K-71TM
	FP2, FP11, FP12	Cr/Mo	K-8018B2		
	FP21, FP22	Cr/Mo	K-9018B3		
	FP5, FP7, FP9	Cr/Mo	KST-309, KST-310	M-309, M-310	K-309T
A372-87a	Type Ⅰ	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
	Type Ⅱ	LOW ALLOY	K-7018A1		K-81T
	Type Ⅲ,AV	LOW ALLOY	K-9018B3		
	Type Ⅳ, Ⅵ	ALLOY STEEL	K-11018M		K-81TB2
	Type Ⅶ,Ⅷ	ALLOY STEEL			K-91TB3
A376-88	TP304, TP304N	STAINLESS	KST-308	M-308	K-308T
	TP304H	STAINLESS			
	TP304LN	STAINLESS	KST-308L	M-308L	K-308LT
	TP316, TP316N	STAINLESS	KST-316	M-316	K-316T
	TP316LN	STAINLESS	KST-316L	M-316L	K-316LT
	TP316H	STAINLESS			
	TP321,TP321H,TP347	STAINLESS	KST-347	M-347	K-347T
	TP347H	STAINLESS			

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A377-84					
A381-88	Y35 thru Y50	STEEL			
	Y52, Y60	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
	Y65	LOW ALLOY	K-8018C3		K-81T
A387-87	Grade 2, 12, 11	Cr/Mo	K-8018B2		K-81TB2
	Grade 22, 21	Cr/Mo	K-9018B3		K-91TB3
	5, 7, 9	Cr/Mo			
A389-86	C-23	Cr/Mo	K-8018B2		K-81TB2
	C-24	Cr/Mo	K-9018B3		K-91TB3
A391-86	ALL	Cr/Mo			
A395-88		NICKEL			
A403-88a	WP/CR 304, 304N	STAINLESS	KST-308	M-308	K-308T
	WP/CR 304L, 304LN	STAINLESS	KST-308L	M-308L	K-308LT
	WP/CR 304H	STAINLESS			
	WP/CR 309	STAINLESS	KST-309	M-309	K-309T
	WP/CR 316, 316N	STAINLESS	KST-316	M-316	K-316T
	WP/CR 316L,316LN	STAINLESS	KST-316L	M-316L	K-316LT
	WP/CR 316H	STAINLESS			
	WP/CR 317	STAINLESS	KST-317		
	WP/CR 317L	STAINLESS	KST-317L		K-317LT
	WP/CR 321,347,348	STAINLESS	KST-347	M-347	K-347T
A405-88	P24	Cr/Mo	K-8018B2		K-81TB2
A409-88a	TP 304	STAINLESS	KST-308	M-308	K-308T
	TP 304L	STAINLESS	KST-308L	M-308L	K-308LT
	TP 309S	STAINLESS	KST-309	M-309	K-309T
	TP 309Cb	STAINLESS			
	TP 310S	STAINLESS	KST-310	M-310	
	TP 310Cb	STAINLESS			
	TP 316	STAINLESS	KST-316	M-316	K-316T
	TP 316L	STAINLESS	KST-316L	M-316L	K-316LT
	TP 317	STAINLESS	KST-317		
	TP 321,347,348	STAINLESS	KST-347	M-347	K-347T
A414-88	A, B, C	STEEL	K-6012, KR-3000	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
	D, E, F, G	STEEL	K-7018		KX-100, KX-200 K-71T, K-70TB, K-71TM
A420-88	WPL6	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-70TB, K-71TM

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A420-88	WPL9	NICKEL STEEL			
	WPL3	NICKEL STEEL			
	WPL8	NICKEL STEEL			
A423-86	1	Cr/Mo	K-8018B2	ZO-60	K-81TB2
	2	Cr/Mo	K-8018C3		K-81T
A424-80		STEEL	K-7018	KC-25	KX-100, KX-200, K-71T, K-71TM
A426-80	CP1, CP15	Cr/Mo	K-7018A1		
	CP2, CP11, CP12	Cr/Mo	K-8018B2		
	CP5, CP5b, CP21	Cr/Mo	KST-309	M-309	K-309T
	CP7, CP9	STAINLESS	KST-309	M-309	K-309T
	CP22	Cr/Mo	K-9018B3		
A430-88	FP304,304H,304N	STAINLESS	KST-308	M-308	K-308T
	FP316,316H,316N	STAINLESS	KST-316	M-316	K-316T
	FP321,321H,347	STAINLESS	KST-347	M-347	K-347T
A434-81 (1988)	BB (4130, 8630) (4140)				
	BC (4130, 8630) (4140) (4340, 4330)				
	BC (4130) (4140) (4330, 4340)				
A439-83	ALL				
A442-86a	55	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	65	STEEL	K-8018C3	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A444-88			KCL-10	KC-25	K-NGS, K-NGS11
A446-87			KCL-10	KC-25	K-NGS, K-NGS11
A447-87		STAINLESS	KST-309	M-309	K-309T
A451-80	CPF3, CPF3A	STAINLESS	KST-308L	M-308L	K-308LT
	CPF8, CPF8A	STAINLESS	KST-308	M-308	K-308T
	CPF3M	STAINLESS	KST-316L	M-316L	K-316LT
	CPF8M	STAINLESS	KST-316	M-316	K-316T
	CPF10MC	STAINLESS	KST-318		
	CPF8C	STAINLESS	KST-347	M-347	K-347T
	CPH8, CPH20	STAINLESS	KST-309	M-309	K-309T
	CPK20	STAINLESS	KST-310	M-310	
A452-88	TP304H	STAINLESS	KST-308	M-308	K-308T
	TP347H	STAINLESS	KST-347	M-347	K-347T
	TP316H	STAINLESS	KST-316	M-316	K-316T
A455-82		LOW ALLOY	K-7018, K-8018C3	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71T
A457-82		STAINLESS	KST-318		

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A458-88		STAINLESS	KST-318		
A463-88		STEEL	KCL-10	KC-25	K-NGS, K-NGS11
A469-87a	1	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	2	NICKEL STEEL			
	3	NICKEL STEEL			
	4	NICKEL STEEL			
	5, 6, 7	NICKEL STEEL			
A470-84	1	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	2	NICKEL STEEL			
	3 & 5	NICKEL STEEL			
	4, 6, 7, 8	NICKEL STEEL			
A471-87a	10	NICKEL STEEL			
A473-87	201,202,205,302 302B,304,305,308	STAINLESS	KST-308	M-308	K-308T
	303	STAINLESS	KST-308L, KST-312	M-308L	K-308LT
	304L	STAINLESS	KST-308L	M-308L	K-308LT
	309, 309S	STAINLESS	KST-309	M-309	K-309T
	310, 310S, 314	STAINLESS	KST-310	M-310	
	316	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
	317	STAINLESS	KST-317		
	321, 347, 348	STAINLESS	KST-347	M-347	K-347T
	403, 405, 410 410S, 414	STAINLESS	KST-410	M-410	K-410T
	416, 420	STAINLESS			
	429, 430, 431	STAINLESS	KST-430	M-430	
	440A, 440B, 440C	STAINLESS	KST-309, KST-312 KST-310	M-309, M-310	K-309T
	501,501A,501B,502	STAINLESS			
A476-84					
A477-81	651	STAINLESS	KST-318		
A478-82	302, 304, 305	STAINLESS	KST-308	M-308	K-308T
	304L	STAINLESS	KST-308L	M-308L	K-308LT
	309Cb	STAINLESS			
	310Cb	STAINLESS			
	316	STAINLESS	KST-316	M-316	K-316T

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A478-82	316L	STAINLESS	KST-316L	M-316L	
	317	STAINLESS	KST-317		K-316LT
A479-88a	302,304,304H,304N	STAINLESS	KST-308	M-308	K-308T
	304L, 304LN	STAINLESS	KST-308L	M-308L	K-308LT
	309S	STAINLESS	KST-309	M-309	K-309T
	309Cb	STAINLESS			
	310S	STAINLESS	KST-310	M-310	
	310Cb	STAINLESS			
	316, 316N	STAINLESS	KST-316	M-316	K-316T
	316L, 316LN	STAINLESS	KST-316L	M-316L	K-316LT
	321,321H,347,348	STAINLESS	KST-347	M-347	K-347T
	403,410,414,405	STAINLESS	KST-410	M-410	K-410T
	430	STAINLESS	KST-430	M-430	
A487-88	11A, 12A, 16A	STEEL	K-8018C3		K-81T
	1A, 1B, 1C, 2A, 2B, 2C, 4A	STEEL	K-9018M		
	4C,8A,9A,9C,13A				
	4B,4D,4E,8B,8C 9B, 9D	ALLOY STEEL	K-11018M		
	10A,11B,12B,13B				
	6A,6B,7A,14A,10B	ALLOY STEEL	K-12018M		
A493-88	302, 304, 305	STAINLESS	KST-308	M-308	K-308T
	316	STAINLESS	KST-316	M-316	K-316T
	384	STAINLESS	KST-309	M-309	K-309T
	429, 430	STAINLESS	KST-430	M-430	
	410, 431	STAINLESS	KST-410	M-410	K-410T
	440C	STAINLESS	KST-312		
A494-87a	M-35-1, M-25S				
A496-85		LOW ALLOY		KC-28	KX-100, KX-200, K-71T, K-71TM
A497-86		LOW ALLOY		KC-28	KX-100, KX-200, K-71T, K-71TM
A499-81	50	STEEL		KC-28	KX-100, KX-200, K-71T, K-71TM
	60	STEEL		KC-80D2	
A500-84	ALL	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A501-88	ALL	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A508-88a	1, A1, 2, 3, 2a, 3a 4b, 4, 5, 4a, 5a		K-9018M, K-10018M K-11018M, K12018M	KC-80D2	
A511-88a	MT302, MT304, MT305	STAINLESS	KST-308	M-308	K-308T
	MT-309S	STAINLESS	KST-309	M-309	K-309T
	MT-310S	STAINLESS	KST-310	M-310	
	MT-316	STAINLESS	KST-316	M-316	K-316T
	MT-316L	STAINLESS	KST-316L	M-316L	K-316LT

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A511-88a	MT317	STAINLESS	KST-317		
	MT321,MT347	STAINLESS	KST-347	M-347	K-347T
	MT403,MT410 MT414,MT416SE	STAINLESS	KST-410	M-410	K-410T
	MT431	STAINLESS	KST-430	M-430	
	MT440A	STAINLESS	KST-312		
	MT405	STAINLESS			K-410NiMoT
	MT429,MT430	STAINLESS	KST-430	M-430	
	MT446-1,MT446-2	STAINLESS	KST-309, KST-310	M-309, M-310	K-309T
A512-86	ALL EXCEPT 1110 1115, 1117	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
A513-88	1008 thru 1015	STEEL	KCL-10, KCL-11 K-6012, KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
	1016 thru 1035	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-71TM
	4130, 8630	ALLOY STEEL			
	4140	ALLOY STEEL			
A514-88	ALL	LOW ALLOY	K-11018M K-12018M		
A515-82	ALL	STEEL	K-7018	KC-25 KD-42	KX-100, KX-200 K-71T, K-71TM
A516-86	ALL	STEEL	K-7018	KC-25, KD-42	KX-100, KX-200, K-71T, K-71TM
A517-87a	ALL	LOW ALLOY	K-11018M K-12018M		
A521-76	CA, CC, CC1	STEEL	KCL-10, KCL-11 K-6012, KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
	CE, CF, AA, AB	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-71TM
	AC, AD, CF1, CG	LOW ALLOY		KC-80D2	KX-100, KX-200
	AE	LOW ALLOY			
	AF	LOW ALLOY	K-11018M		
A522-87	ALL	STAINLESS			
A523-88	A & B	STEEL	KCL-10, KCL-11 K-6012, KR-3000	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A524-88	I & II	STEEL	KCL-10, KCL-11 K-6012, KR-3000	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A526-85 A527-85 A528-85		STEEL	KCL-10 KCL-10, KCL-11	KC-25~ KC-28	K-NGS, K-NGS11
A529-88		STEEL	K-6012, KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
A533-87	A1	STEEL			

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A533-87	B1,B2,C1,C2,D1,D2	LOW ALLOY			
	A3,B3,C3,D3	LOW ALLOY	K-11018M		
A536-84	60-40-18, 60-45-12 60-42-10, 70-50-05	NICKEL			
A537-86	1	STEEL	K-7018, K-8018C3	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
	2	STEEL	K-8018C1	KC-80D2	K-80TK2, K-81T
A539-88		STEEL	KCL-10	KC-25~ KC-28	KX-100, KX-200 K-71T, K-NGS, K-71TM
A541-88	1, 1A	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-71TM
	2, 3, 4	Cr/Mo	K-8018C3		K-81T
	3V, 22B	LOW ALLOY	K-9018B3		K-91TB3
	2A, 3A, 7B	LOW ALLOY	K-10018M		
	22C, 7, 8	LOW ALLOY	K-11018M		
	22D, 7A, 8A	LOW ALLOY	K-12018M		
A542-88	1A,1B,3A,3B,4A,4B	Cr/Mo	K-9018B3		K-91TB3
	4aA, 4aB	Cr/Mo			
	2B, 2C	Cr/Mo	K-9018B3		K-91TB3
A543-87	1B,1C,3B,3C	LOW ALLOY	K-11018M		
	2B, 2C	LOW ALLOY	K-12018M		
A553-87b	1	NICKEL			
A554-88a add:	same as A511-88a except for the following				
	MT-301	STAINLESS	KST-308	M-308	K-308T
	MT-309S-Cb	STAINLESS			
	MT-330	STAINLESS			
A556-88	A2	STEEL	KCL-10	KC-25~ KC-28	KX-100, KX-200 K-71T, K-NGS, K-71TM
A557-88	B2, C2	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-NGS, K-71TM
A562-82		STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-NGS, K-71TM
A568-88a A569-85 A570-80	ALL	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A571-84		NICKEL			
A572-82	42, 50, 60	STEEL	K-7018	KC-25	KX-100, KX-200, K-70TB
	65	LOW ALLOY	K-8018C3	KC-28	K-81T
A573-88	58, 65	STEEL	K-7018	KC-28	KX-100, KX-200, K-70TB

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A573-88	70	STEEL	K-8018C3	KC-28	K-81T
A575-88a	M1008 thru M1025	STEEL	KCL-10, K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
	M1031&M1044	STEEL	K-8018C3	KC-28	K-81T
A576-87a	1008 thru 1029	STEEL	KCL-10, K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
	1030 thru 1040	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-71TM
	1042 thru 1055 1060 1070, 1078	STEEL STEEL STEEL	K-8018C3 K-11018M	 KC-80D2 	K-81T
A581-88	303, 303SE	STAINLESS	KST-308	M-308	K-308T
A582-88	416, 416SE 430, 430F	STAINLESS STAINLESS	KST-312,KST-410 KST-430	M-410 M-430	K-410T
A587-88		STEEL	KCL-10	KC-28	KX-100, KX-200, K-71T, K-
A588-88a	ALL	STEEL		ZO-60	71TM
A589-88a	A & B	STEEL	KCL-10,KCL-11 K-6012 KR-3000	KC-25~ KC-28	K-71TW KX-100, KX-200
A591-77		STEEL	KCL-10	KC-25	K-71T, K-71TM
A592-85	A, E, F	LOW ALLOY	K-11018M		K-NGS, K-NGS11
A595-88	A, B, C	STEEL	K-7018	KC-25, KC-28	 KX-100, KX-200
A602-70	ALL	NICKEL			K-71T, K-71TM
A606-85	ALL	STEEL		ZO-60	
A607-85	45, 50	STEEL	KCL-10, KCL-11 K-6012,KR-3000	KC-25	K-71TW KX-100, KX-200
	55, 60	STEEL	K-7018	KC-25 KC-28	K-71T, K-71TM KX-100, KX-200
	65, 70	STEEL	K-8018C3		K-71T, K-71TM
A608-88	HC30, HD50 HE35 HF30 HH30,HH33,HI35 HK30,HK40 HL30,HL40	STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS	KST-430 KST-312 KST-347 KST-309 KST-310	M-430 M-347 M-309 M-310	K-81T K-347T K-309T
A611-85 if copper is specified use	A, B, C, D	STEEL	KCL-10, KCL-11 K-6012,KR-3000	KC-25	 KX-100, KX-200
	E	STEEL	K-8018C3	KC-28	K-71T, K-71TM KX-100, KX-200
	ALL	STEEL		ZO-60	K-71T, K-71TM
A612-87		STEEL	K-8018C1		K-71TW
A615-87a	40	STEEL	K-7018	KC-25	K-81T KX-100, KX-200
	60	LOW ALLOY	K-9018M		K-71T, K-70TB, K-71TM

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A615-87a	75	LOW ALLOY	K-11018M		
A616-87	50	LOW ALLOY			KX-100, KX-200 K-71T, K-70TB, K-71TM
	60	LOW ALLOY	K-9018M		
A617-87	40	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	60	LOW ALLOY	K-9018M		
A618-88	ALL	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
A619-82 A620-84 A621-82 A622-82		STEEL	KCL-11, K-6012 KR-3000, K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-NGS, K-71TM
A633-88a	A, C, D	STEEL	K-7018	KC-25,KC-28	KX-100, KX-200 K-71T, K-70TB, K-71TM
	E	LOW ALLOY	K-8018C3	KC-28	K-81T
A635-88	1006 thru 1023	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
A642-85		STEEL	KCL-10	KC-25	K-NGS, K-NGS11
A649-87	2, 4	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
	1A2	LOW ALLOY			
	1A1	LOW ALLOY			
	AB1	LOW ALLOY			
	3	Cr / Mo	K-8018B2		
	1B2	Cr / Mo	K-11018M		
A656-88	50, 60	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
	70	LOW ALLOY	K-8018C3		K-81T
	80	LOW ALLOY	K-9018M		
A659-85	ALL	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
A660-88	ALL	STEEL	K-7018	KC-25	KX-100, KX-200
A662-86	A & B	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	C	LOW ALLOY	K-8018C3		K-81T
A663-88	45,50,55,60,65	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	70, 75, 80	LOW ALLOY		KC-28	KX-100, KX-200 K-71T, K-71TM
A666-88	201,202,301,302,304	STAINLESS	KST-308	M-308	K-308T

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A666-68	304L, 304LN	STAINLESS	KST-308L	M-308L	K-308LT
	316, 316N	STAINLESS	KST-316	M-316	K-316T
	316L	STAINLESS	KST-316L	M-316L	K-316LT
A668-85a	A, AH, B, BH, C, CH D, DH	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	E, EH, G, GH	LOW ALLOY		KC-28	K-81T
	F, FH, H, HH	Cr / Mo	K-8018B2		K-91TB3
	J, JH, K, KH	Cr / Mo			
	L, LH	Cr / Mo	K-11018M		
	M, MH, N, NH	STAINLESS			
A671-85	CA55, CB60, CB65 CB70,CC60,CC65,CC70 CE55, CD70	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	CD80,CE60,CF65 CF70	LOW ALLOY	K-8018C1		
	CF-66, CF71	LOW ALLOY	K-8018C2		
	CJ101 thru CJ113	LOW ALLOY	K-11018M		
	CK75	LOW ALLOY	K-7018A1 K-8018B2		K-81TB2
A672-81	A45,A50,A55,B55 B60,B65,B70,C55 C60,C65,C70,D70 D80,E55,E60	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	H75, H80	LOW ALLOY	K-7018A1 K-8018B2		K-81TB2
	J80, J90, J100	LOW ALLOY	K-7018A1 K-10018M		
	K75,K85,L65,670 L75,M70,M75,N75	LOW ALLOY	K-8018B2		K-81TB2
A675-88	40,50,55,60,65,70	STEEL	K-7018	KC-25~ KC-28	KX-100, KX-200 K-71T, K-71TM
	75,80,90	LOW ALLOY	K-9018M		
A678-88	A	STEEL	K-7018	KC-28	KX-100,KX-200,K-71T,K-71TM
	B	STEEL	K-8018C3		
	C, D	CARBON STEEL	K-11018M		
A688-88a	TP304	STAINLESS	KST-308	M-308	K-308T
	TP304L,TP304LN	STAINLESS	KST-308L	M-308L	K-308LT
	TP316	STAINLESS	KST-316	M-316	K-316T
	TP316L,TP316LN	STAINLESS	KST-316L	M-316L	K-316LT
	TPXM-29	NICKEL ALLOY			
A690-88	ALL	LOW ALLOY		ZO-60	
A691-85a	CM-65,CM-70	Cr / Mo	K-7018A1		

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A691-85a	CM-75,CMSH-70				
	CMSH-75				
	CMSH-80	Cr / Mo	K-8018C3		K-81T
	1/2CR, 1CR, 1/4CR	Cr / Mo	K-8018B2		K-81TB2
	2 1/4CR	Cr / Mo			K-91TB3
A692-88		Cr / Mo	K-7018A1		
A694-87	ALL	STEEL	K-7018	KC-28	KX-100, KX-200 K-71T, K-71TM
A695-81	A, B, C, D GRADE 35 & 40	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	A, C, D GRADE 45 & 50	Cr / Mo	K-9018M	KC-80D2	
A696-85	B	STEEL	KCL-10, KCL-11 K-6012, KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
	C	STEEL	K-7018	KC-25 KC-28	KX-100, KX-200 K-71T, K-71TM
A704-85	40	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	60	Cr / Mo	K-9018M		
A706-88	60	Cr / Mo	K-8018C3		K-81T
A707-87	L1, L2, L3	STEEL	K-7018	KC-28	KX-100,KX-200,K-71T,K-71TM
	L4	LOW ALLOY	K-8018C1		
	L5, L6	LOW ALLOY	K-8018C3		
	L7, L8	LOW ALLOY	K-8018C2		
A709-88a	36, 50	STEEL	KCL-10, KCL-11 K-6012, KR-3000 K-7014, K-7024 K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	50W	LOW ALLOY		ZO-60	
	70W	LOW ALLOY		ZO-60	
	100	LOW ALLOY	K-11018M		
A710-87	A1, A3, B	LOW ALLOY	K-8018C2		
	A2	LOW ALLOY	K-8018C3		KX-100, KX-200 K-71T, K-71TM
	C1, C3	LOW ALLOY	K-10018M		
A714-84	ALL	LOW ALLOY		ZO-60	
A715-88	50, 60	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	70, 80	LOW ALLOY	K-8018C3		
A724-88	ALL	Cr / Mo	K-11018M		
A727-87		Cr / Mo	K-7018A1		

RECOMMENDED KISWEL LTD. FILLER METALS FOR WELDING THE ASTM STEELS

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A730-81	A & B	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, T-71TM
A732-85	1A,2A,2Q,3A,5N	STEEL		KC-28	KX-100, KX-200 K-71T,K-71TM,K-71TM
	6N	Cr / Mo		KC-80D2	
	7Q, 8Q, 14Q	Cr / Mo			
	9Q, 10Q	Cr / Mo			
A734-87a	A	LOW ALLOY	K-8018C3		
	B	LOW ALLOY	K-8018C1		
A735-87	ALL	LOW ALLOY		KC-80D2	
A737-87	B	LOW ALLOY	K-8018C3		
	C	LOW ALLOY	K-9018M		
A738-87a	A	LOW ALLOY	K-8018C3	ZO-60	
	B & C	LOW ALLOY	K-9018M	ZO-60	
A739-81a	B11	LOW ALLOY	K-8018B2		K-81TB2
	B22	LOW ALLOY	K-9018B3		K-91TB3
A744-88a	CF-8	STAINLESS	KST-308	M-308	K-308T
	CF-8M	STAINLESS	KST-316	M-316	K-316T
	CF-8C	STAINLESS	KST-347	M-347	K-347T
	CF-3	STAINLESS	KST-308L	M-308L	K-308LT
	CF-3M	STAINLESS	KST-316L	M-316L	K316LT
A757-88a	A1Q, A2Q	ALLOY STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
	B2N, B2Q	ALLOY STEEL	K-8018C1		
	B3N, B3Q	ALLOY STEEL	K-8018C2		
	C1Q	ALLOY STEEL			
	D1N1,D1N2,D1N3 D1Q1,D1Q2,D1Q3	ALLOY STEEL	K-9018B3		K-91TB3
A757-88a	E1Q, E2N, E3N	ALLOY STEEL	K-11018M		
A758-88	ALL	STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
A759-85		STEEL	K-7018	KC-25	KX-100, KX-200 K-71T, K-71TM
A765-87	I	LOW ALLOY	K-8018C3		
	II	LOW ALLOY	K-8018C1		
A769-88	36,40,45,50,60	STEEL	KCL-10,K-7018 KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
A769-88	80	LOW ALLOY	K-9018M, K-10018M		
A771-88	TP316	STAINLESS	KST-316	M-316	K-316T

ASTM DESIGNATION	CLASS OR GRADE	TYPE OF METAL	KISWEL FILLER METAL		
			SMAW	GMAW/SAW	FCAW
A774-88 & A778-88	TP304L	STAINLESS	KST-308L	M-308L	K-308LT
	TP316L	STAINLESS	KST-316L	M-316L	K-316LT
	TP317L	STAINLESS	KST-317L		K-317LT
	TP321, TP347	STAINLESS	KST-347	M-347	K-347T
A782-87	1	LOW ALLOY	K-9018B3		K-81TB2
	2	LOW ALLOY	K-11018M		K-91TB3
	3	LOW ALLOY	K-12018M		
A787-84b	ALL	STEEL	KCL-10, KCL-11 KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
A792-86	ALL	STEEL	KCL-10	KC-25	K-NGS, K-NGS11
A793-85		STAINLESS	KST-308	M-308	K-308T
A795-88	A & B	STEEL	KCL-10, KCL-11 KR-3000	KC-25	KX-100, KX-200 K-71T, K-71TM
	If Galvanized	STEEL	KCL-10	KC-25	K-NGS, K-NGS11
A816-88	50 & 60	STELL	KCL-10	KC-25	K-NGS, K-NGS11
A823-84	ALL	NICKEL ALLOY			
A844-87b		NICKEL ALLOY			
A852-88a		LOW ALLOY		ZO-60	
A871-87		LOW ALLOY		ZO-60	
A873-87a	1, 2, 3, 4	LOW ALLOY	K-9018B3		K-91TB3

CONVERSION TABLES

STRESS CONVERSION TABLE

($lbf/in^2 \Leftrightarrow kgf/mm^2$)

lbf/in²	0,000	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
	kgf/mm²									
0,000	0.000	0.703	1 .406	2.109	2.812	3.515	4.218	4.922	5.625	6.328
10,000	7.031	7.734	8.437	9.140	9.843	10.546	11.249	11.952	12.655	13.359
20,000	14.063	14.765	15.468	16.171	16.874	17.577	18.280	18.983	19.686	20.389
30,000	21.092	21.796	22.499	23.202	23.905	24.608	25.311	26.014	26.717	27.420
40,000	28.123	28.826	29.529	30.233	30.936	31.639	32.342	33.045	33.748	34.451
50,000	35.154	35.857	36.560	37.263	37.966	38.669	39.373	40.076	40.779	41.482
60,000	42.185	42.888	43.591	44.294	44.997	45.700	46.403	47.106	47.810	48.513
70,000	49.216	49.919	50.622	51.325	52.028	52.731	53.434	54.137	54.840	55.543
80,000	56.247	56.950	57.653	58.356	59.059	59.762	60.465	61.168	61.871	62.574
90,000	63.277	63.980	64.684	65.387	66.090	66.793	67.496	68.199	68.902	69.605
100,000	70.308	71.011	71.714	72.417	73.120	73.824	74.527	75.230	75.933	76.636
110,000	77.339	78.012	78.745	79.448	80.151	80.854	81.557	82.261	82.964	83.667
120,000	84.370	85.073	85.776	86.479	87.182	87.885	88.588	89.291	89.994	90.698
130,000	91.401	92.104	92.807	93.510	94.213	94.916	95.619	96.322	97.025	97.728
140,000	98.431	99.134	99.838	100.541	101.244	101.947	102.650	103.353	104.056	104.759
150,000	105.462	106.165	106.868	107.571	108.275	108.978	109.681	110.384	111.087	111.790
160,000	112.493	113.196	113.899	114.602	115.305	116.008	116.712	117.415	118.118	118.821
170,000	119.524	120.227	120.930	121.633	122.336	123.039	123.742	124.445	125.148	125.852
180,000	126.555	127.258	127.961	128.664	129.367	130.070	130.773	131.476	132.179	132.882
190,000	133.585	134.289	134.992	135.695	136.398	137.101	137.804	138.507	139.210	139.913
200,000	140.616	141.319	142.022	142.726	143.429	144.132	144.835	145.538	146.241	146.944
210,000	147.647	148.350	149.058	149.756	150.459	151.163	151.866	152.569	153.272	153.975
220,000	154.678	155.381	156.084	156.787	157.490	158.193	158.896	159.599	160.303	161.006
230,000	161.709	162.412	163.115	163.818	164.521	165.224	165.224	166.630	167.333	168.036
240,000	168.740	169.443	170.146	170.849	171.552	172.255	172.255	173.661	174.364	175.067
250,000	175.770	176.473	177.177	177.880	178.583	179.989	179.286	180.692	181.395	182.098

1bf/in²	100	200	300	400	500	600	700	800	900
kgf/mm²	0.0703	0.1406	0.2109	0.2812	0.3515	0.4218	0.4922	0.5625	0.6328

HARDNESS CONVERSION TABLE

Vickers Hardness (DPH)	Vickers Hardness 10mm ball, 3,000kg load		Rockwell Hardness		Shore Hardness	Tensile Strength (kgf/mm²) (Approx.)
	Standard Ball	Tungsten carbide Ball	B scale	C scale		
940	-	-	-	68.0	97	-
920	-	-	-	67.5	96	-
900	-	-	-	67.0	95	-
880	-	767	-	66.4	93	-
860	-	757	-	65.9	92	-
840	-	745	-	65.3	91	-
820	-	733	-	64.7	90	-
800	-	722	-	64.0	88	-
780	-	710	-	63.3	87	-
760	-	698	-	62.5	86	-
740	-	684	-	61.8	84	-
720	-	670	-	61.0	83	-
700	-	656	-	60.1	81	-
690	-	647	-	59.7	-	-
680	-	638	-	59.2	80	-
670	-	630	-	58.8	-	-
660	-	620	-	58.3	79	-
650	-	611	-	57.8	-	-
640	-	601	-	57.3	77	-
630	-	591	-	56.8	-	-
620	-	582	-	56.3	75	-
610	-	573	-	55.7	-	-
600	-	564	-	55.2	74	-
590	-	554	-	54.7	-	210
580	-	545	-	54.1	72	206
570	-	535	-	53.6	-	202
560	-	525	-	53.0	71	199
550	505	517	-	52.3	-	195
540	496	507	-	51.7	69	190
530	488	497	-	51.1	-	186
520	480	488	-	50.5	67	183
510	473	479	-	49.8	-	179
500	465	471	-	49.1	66	174
490	456	460	-	48.4	-	169
480	448	452	-	47.7	64	165
470	441	442	-	46.9	-	160
460	433	433	-	46.1	62	156
450	425	425	-	45.3	-	153
440	415	415	-	44.5	59	149
430	405	405	-	43.6	-	144
420	397	397	-	42.7	57	140

CONVERSION TABLES

HARDNESS CONVERSION TABLE (Cont.)

Vickers Hardness (DPH)	Vickers Hardness 10mm ball, 3,000kg load		Rockwell Hardness		Shore Hardness	Tensile Strength (kgf/mm²) (Approx.)
	Standard Ball	Tungsten carbide Ball	B scale	C scale		
410	388	388	-	41.8	-	136
400	379	379	-	40.8	55	131
390	369	369	-	39.8	-	127
380	360	360	(110.0)	38.8	52	123
370	350	350	-	37.7	-	120
360	341	341	(109.0)	36.6	50	115
350	331	331	-	35.5	-	112
340	322	322	(108.0)	34.4	47	109
330	313	313	-	33.3	-	105
320	303	303	(107.0)	32.2	45	103
310	294	294	-	31.0	-	100
300	284	284	(105.5)	29.8	42	97
295	280	280	-	29.2	-	96
290	275	275	(104.5)	28.5	41	94
285	270	270	-	27.8	-	92
280	265	265	(103.5)	27.1	40	91
275	261	261	-	26.4	-	89
270	256	256	(102.0)	25.6	38	87
265	252	252	-	24.8	-	86
260	247	247	(101.0)	24.0	37	84
255	243	243	-	23.1	-	82
250	238	238	99.5	22.2	36	81
245	233	233	-	21.3	-	79
240	228	228	98.1	20.3	34	77
230	219	219	96.7	(18.0)	33	75
220	209	209	95.0	(15.7)	32	71
210	200	200	93.4	(13.4)	30	68
200	190	190	91.5	(11.0)	29	65
190	181	181	89.5	(8.5)	28	62
180	171	171	87.1	(6.0)	26	59
170	162	162	85.0	(3.0)	25	56
160	152	152	81.7	(0.0)	24	53
150	143	143	78.7	-	22	50
140	133	133	75.0	-	21	46
130	124	124	71.2	-	20	44
120	114	114	66.7	-	-	40
110	105	105	62.3	-	-	-
100	95	95	56.2	-	-	-
95	90	90	52.0	-	-	-
90	86	86	48.0	-	-	-
85	81	81	41.0	-	-	-

IMPACT VALUE CONVERSION TABLE(1)

(ft · lbf ⇔ kgf · m)

ft · lb	0	1	2	3	4	5	6	7	8	9
	kgf/mm									
0	0.000	0.138	0.276	0.415	0.553	0.691	0.830	0.968	1.106	1.244
10	1.383	1.521	1.659	1.797	1.936	2.074	2.212	2.350	2.489	2.627
20	2.765	2.903	3.042	3.180	3.318	3.456	3.595	3.733	3.871	4.009
30	4.148	4.286	4.424	4.562	4.701	4.839	4.977	5.116	5.254	5.392
40	5.530	5.669	5.807	5.945	6.083	6.222	6.360	6.498	6.636	6.774
50	6.913	7.051	7.189	7.328	7.466	7.604	7.742	7.881	8.019	8.157
60	8.295	8.434	8.572	8.710	8.848	8.987	9.125	9.263	9.401	9.540
70	9.678	9.816	9.955	10.093	10.231	10.369	10.580	10.646	10.784	10.922
80	11.061	11.199	11.337	11.475	11.614	11.752	11.890	12.028	12.167	12.305
90	12.443	12.581	12.720	12.858	12.996	13.134	13.273	13.411	13.549	13.687
100	13.826	13.964	14.102	14.240	14.379	14.517	14.655	14.794	14.932	15.070
110	15.208	15.347	15.485	15.623	15.761	15.900	16.038	16.176	16.314	16.453
120	16.591	16.729	16.867	17.006	17.144	17.282	17.420	17.559	17.697	17.835
130	17.973	18.112	18.250	18.388	18.526	18.665	18.803	18.941	19.079	19.218
140	19.356	19.494	19.632	19.771	19.909	20.047	20.186	20.324	20.462	20.600
150	20.739	20.877	21.015	21.153	21.292	21.430	21.568	21.706	21.845	21.983
160	22.121	22.259	22.398	22.536	22.674	22.812	22.951	23.089	23.227	23.365
170	23.504	23.642	23.780	23.918	24.057	24.195	24.333	24.471	24.610	24.748
180	24.886	25.025	25.163	25.301	25.439	25.578	25.716	25.854	25.992	26.131
190	26.269	26.407	26.545	26.684	26.821	26.960	27.098	27.237	27.375	27.513
200	27.651	27.790	27.928	28.066	28.204	28.343	28.481	28.619	28.757	28.896

conversion factor ; 1ft · lbF= 0.138255kgf · m

kgf · m	ft · lbf	J
1	7.23275	9.80665
0.13826	1	1.35587
0.10197	0.73754	1

CONVERSION TABLES

IMPACT VALUE CONVERSION TABLE(2)

(ft · lbf ⇔ kgf · m)

ft · lb	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
					N · m {or J}					
-	-	0.9807	1.9613	2.9420	3.9227	4.9033	5.8840	6.8647	7.8453	8.8260
1	9.8066	10.787	11.768	12.749	13.729	14.710	15.691	16.671	17.652	18.633
2	19.613	20.594	21.575	22.555	23.536	24.517	25.497	26.478	27.459	28.439
3	29.420	30.401	31.381	32.362	33.343	34.323	35.304	36.285	37.265	38.246
4	39.227	40.207	41.188	42.169	43.149	44.130	45.111	46.091	47.072	48.053
5	49.033	50.014	50.995	51.975	52.956	53.937	54.917	55.898	56.879	57.859
6	58.840	59.821	60.801	61.782	62.763	63.743	64.724	65.705	66.685	67.666
7	68.647	69.627	70.608	71.589	72.569	73.550	74.531	75.511	76.492	77.473
8	78.453	79.434	80.415	81.395	82.376	83.357	84.337	85.318	86.299	87.279
9	88.260	89.241	90.221	91.202	92.183	93.163	94.144	95.125	96.105	97.086
10	98.066	99.047	100.03	101.01	101.99	102.97	103.95	104.93	105.91	106.89
11	107.87	108.85	109.83	110.82	111.80	112.78	113.76	114.74	115.72	116.70
12	117.68	118.66	119.64	120.62	121.60	122.58	123.56	124.54	125.53	126.51
13	127.49	128.47	129.45	130.43	131.41	132.39	133.37	134.35	135.33	136.31
14	137.29	138.27	139.25	140.24	141.22	142.20	143.18	144.16	145.15	146.12
15	147.10	148.08	149.06	150.04	151.02	152.00	152.98	153.96	154.95	155.93
16	156.91	157.89	158.87	159.85	160.83	161.81	162.79	163.77	164.75	165.73
17	166.71	167.69	168.67	169.66	170.64	171.62	172.60	173.58	174.56	175.54
18	176.52	177.50	178.48	179.46	180.44	181.42	182.40	183.38	184.37	185.35
19	186.33	187.31	188.29	198.27	190.25	191.23	192.21	193.19	194.17	195.15
20	196.13	197.11	198.09	199.07	200.06	201.04	202.02	203.00	203.98	204.96
21	205.94	206.92	207.90	208.88	209.86	210.84	211.82	212.80	213.78	214.77
22	215.75	216.73	217.71	218.69	219.67	220.65	221.63	222.61	223.59	224.57
23	225.56	226.53	227.51	228.49	229.48	230.46	231.44	232.42	233.40	234.38
24	235.37	236.34	237.32	238.30	239.28	240.26	241.24	242.22	243.20	244.19
25	245.17	246.15	247.13	248.11	249.09	250.07	251.05	252.03	253.01	253.99
26	254.97	255.95	256.93	257.91	258.90	259.88	260.86	261.84	262.82	263.80
27	264.78	265.76	266.74	267.71	268.70	269.68	270.66	271.64	272.62	273.61
28	274.59	275.57	276.55	277.53	278.51	279.49	280.47	281.45	282.43	283.41
29	285.39	285.37	286.35	287.33	288.32	289.30	290.28	291.26	292.24	293.22
30	294.20	295.18	296.16	297.14	298.12	299.10	300.08	301.06	302.04	303.03
31	304.01	304.99	305.97	306.95	307.93	308.91	309.89	310.87	311.85	312.83
32	313.81	314.79	315.77	316.75	317.74	318.72	319.70	320.68	321.66	322.64
33	323.62	324.60	325.58	326.56	327.54	328.52	329.50	330.48	331.46	332.45
34	333.43	334.41	335.39	336.37	337.35	338.33	339.31	340.29	341.27	342.25
35	343.23	344.21	345.19	346.17	347.16	348.14	349.12	350.10	351.08	352.06
36	353.04	354.02	355.00	355.98	356.96	357.94	358.92	359.90	360.88	361.87
37	362.85	363.83	364.81	365.79	366.77	367.75	368.73	369.71	370.69	371.67
38	372.65	373.63	374.61	375.59	376.58	377.56	378.54	379.52	380.50	381.48
39	382.46	383.44	384.42	385.40	386.38	387.36	388.34	389.32	390.30	391.29
40	392.27	393.25	394.23	395.21	396.19	397.17	398.15	399.13	400.11	401.09
41	402.07	403.05	404.03	405.01	406.00	406.98	407.96	408.94	409.92	410.90
42	411.88	412.86	413.84	414.82	415.80	416.78	417.76	418.74	419.72	420.71
43	421.69	422.67	423.65	424.63	425.61	426.59	427.57	428.55	429.53	430.51
44	431.49	432.47	433.45	434.43	435.42	436.40	437.38	438.36	439.34	440.32
45	441.30	442.28	443.26	444.24	445.22	446.20	447.18	448.16	449.14	450.13
46	451.11	452.09	453.07	454.05	455.03	456.01	456.99	457.97	458.95	459.93
47	460.91	461.89	462.87	463.85	464.84	465.82	466.80	467.78	468.76	469.74
48	470.72	471.70	472.68	473.66	474.64	475.62	476.60	477.58	478.56	479.54
49	480.53	481.51	482.49	483.47	484.45	485.43	486.41	487.39	488.37	489.35

c환산율 ; 1kgf · m = 9.8066N · m (or J)

MEMO

Remarks.

1. The abbreviations indicate the approvals as follows;

ABS	: American Bureau of Shipping	BV	: Bureau Veritas
CCS	: China Classification Society	CWB	: Canadian Welding Bureau
DNV	: Det Norske Veritas	GL	: Germanischer Lloyd
KR	: Korean Register of Shipping	LR	: Lloyd's Register of Shipping
NK	: Nippon Kaiji Kyokai	TUV	:Technischen Uberwachungs-Vereine

2. The abbreviations indicate the welding positions as follows;

General	F : Flat	H : Horizontal	H-Fil : Horizontal fillet
OH	: Overhead	V : Vertical	VD : Vertical down
BV	P : Downhand	V : Vertical	H : Horizontal
	T : Overhead	F : Flat	FP : Horizontal-Fillet
	Vd : Vertical-down	V-up : Vertical-up	
GL	d : downhand	h : horizontal	v-u : vertical upward
	v-d : vertical downward	h-v : horizontal-vertical	
	0 : overhead		
LR	D : downhand (flat)	X : horizontal-vertical	
	Vu : vertical upward	Vd : vertical downward	
	Vud : vertical upward or downward		O: overhead

CAUTIONS FOR CUSTOMER

- The general data shown on this catalogues of welding consumables, weld metals, is to explain the representive characteristics, not guarantee it except of the on shown of specification.
- The welding efficiency depends on the chemical compositions of base metal and welding conditions, the experiences of welder, etc.
- The loss caused by misunderstanding and using of the technical information shown on this catalogues is up to user.

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