Covered Electrodes(SMAW)

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SOREX®
The Professional Quality

SC-10

AWS A5.1 E6010
JIS Z3211 E4310
EN ISO 2560-A E 38 3 C 2 1

COVERED ELECTRODES FOR MILD STEEL

DESCRIPTION :

SC-10 is a high cellulose all-position electrode designed for deep penetration on root and filler layers of butt or fillet welding. It has stable arc, fast congealing weld, easy control of melted pool.

APPLICATIONS :

It is used for welding mild steel in pipeline, storage tank, pressure vessels and heavy construction works.

NOTE ON USAGE :

1. Rebake the electrodes at 70 ~ 80 °C for 30 ~ 60 minutes prior to use.
2. Clean up the base metal to be free from contamination.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.120
Manganese (Mn)	0.48
Silicon (Si)	0.2
Phosphorus (P)	0.014
Sulphur (S)	0.007

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	425
TS N/mm2	495
EL%	28

TYPICAL IMPACT VALUES :

IV -30°C J	70

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 80	40 ~ 70
3.2	350	80 ~ 130	75 ~ 110
4.0	350	110 ~ 170	90 ~ 150
5.0	350	140 ~ 200	--

SC-11

AWS A5.1 E6011
JIS Z3211 E4311
EN ISO 2560-A E 38 3 C 1 1

COVERED ELECTRODES FOR MILD STEEL

DESCRIPTION :

SC-11 is a high cellulose all-position electrode designed for deep penetration on root and filler layers of butt or fillet welding using either AC or DC+ current. It has stable arc, good porosity resistance and slag removability and good X-ray quality.

APPLICATIONS :

It is suitable for welding mild steel in shipbuilding, pipeline, storage tank, pressure vessel fittings.

NOTE ON USAGE :

1. Rebake the electrodes at 70 ~ 80°C for 30 ~ 60 minutes prior to use.
2. Clean up the base metal to be free from contamination.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.142
Manganese (Mn)	0.26
Silicon (Si)	0.23
Phosphorus (P)	0.019
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	428
TS N/mm2	498
EL%	27

TYPICAL IMPACT VALUES :

IV -30°C J	50

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	50 ~ 80
3.2	350	80 ~ 120	75 ~ 110
4.0	350	110 ~ 170	90 ~ 150
5.0	350	150 ~ 200	--

SM-13

AWS A5.1 E6013
JIS Z3211 E4313
EN ISO 2560-A E 38 3 R 1 2

COVERED ELECTRODES FOR MILD STEEL

DESCRIPTION :
SM-13 is a high titanium electrode designed for all position welding including vertical down position with good weldability and nice bead appearance.

APPLICATIONS :
It is used for welding of steel structures of shipbuilding, railway vehicles and cars. It is also suitable for thin pipe and other ornamental works.

NOTE ON USAGE :
1. Dry the electrodes at 80 ~ 100°C for 30 ~ 60 minutes prior to use.
2. Clean up the base metal to be free from contamination.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :
Weld Metal Analysis :

Carbon (C)	0.058
Manganese (Mn)	0.29
Silicon (Si)	0.2
Phosphorus (P)	0.021
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	422
TS N/mm2	468
EL%	26

TYPICAL IMPACT VALUES :

IV 0°C J	65

APPROVALS :
-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <±>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 120	80 ~ 100
4.0	400	110 ~ 160	110 ~ 150
5.0	400	160 ~ 220	140 ~ 200

SGCP

AWS --
JIS --
EN --

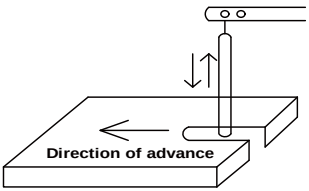
FOR SLOT AND CUTOFF USES

DESCRIPTION AND APPLICATIONS :

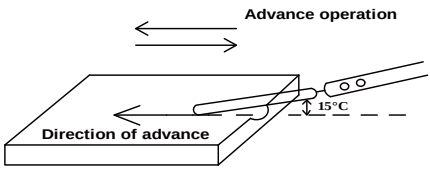
SGCP is an electrode can be worked on AC or DC, and is suitable for steel structure gouging use. Because of the strong spray and high temperature arc, it can melt and cut various metals such as stainless steel, cast iron, copper and its alloys. It provides a more safe way for gouging than the general gas.

NOTE ON USAGE :

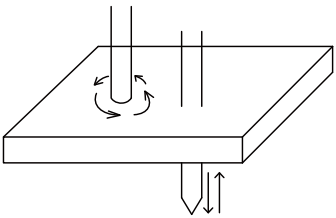
1.Manipulate the electrode at the degree of 10 or 30ith work piece.
2.Take the weaving motion method, and keep the gouging in the required direction.
3.Dry the electrode at 100°C before use.



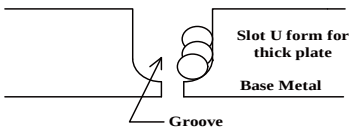
When cut-off(一)



When slot(三)



When perforate (二)



When slot(三)

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Amp
3.2	160 ~ 180
4.0	200 ~ 240
5.0	300 ~ 350

SL-50

AWS A5.1 E7016
JIS Z3211 E4916
EN ISO 2560-A E 42 3 B 1 2

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-50 is a low hydrogen type electrode for the welding of high tensile steel. The welding can be done with stable arc, less spatter, good slag removability, good slag covering and good X-ray soundness.

APPLICATIONS :

It is suitable for low alloy steels, medium carbon steels, heavy steel plates, cast steels and steels of poor weldability.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Keep the arc as short as possible.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.08
Manganese (Mn)	0.89
Silicon (Si)	0.26
Phosphorus (P)	0.021
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	496
TS N/mm2	564
EL%	30

TYPICAL IMPACT VALUES :

IV -30°C J	168

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	90 ~ 120
4.0	400	130 ~ 180	130 ~ 160
5.0	400	180 ~ 240	160 ~ 200

SL-50D

AWS A5.1 E7048
JIS Z3211 E4948
EN ISO 2560-A E 42 3 B 3 1

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-50D is an iron powder low hydrogen electrode developed specially for vertical down stick welding. It offers complete fusion in open root passes, good tack weldability and slag removal with smooth bead appearance.

APPLICATIONS :

It is suitable for the vertical downward welding of ship buildings, steel structures and bridge.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Clean oil, dust and rust from the welding base metal.
4. In vertical downward welding, manipulate the electrode as shown figure instead of balance .

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.090
Manganese (Mn)	0.86
Silicon (Si)	0.27
Phosphorus (P)	0.02
Sulphur (S)	0.01

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	490
TS N/mm2	560
EL%	29.0

TYPICAL IMPACT VALUES :

IV -30°C J	87

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp Vertical Down
3.2	350	110 ~ 160
4.0	450	140 ~ 210
5.0	450	220 ~ 270

SL-56

AWS A5.1 E7028
JIS Z3211 E4928
EN ISO 2560-A E 42 2 B 5 4

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-56 is an iron powder low hydrogen and 490N/mm2 high tensile steel electrode. It has a good crack resistance, good mechanical properties and easy slag removal.

APPLICATIONS :

It is suitable for welding in shipbuilding, bridges, and vehicles with high recovery rate.

NOTE ON USAGE :

1. Dry the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.09
Manganese (Mn)	1.22
Silicon (Si)	0.21
Phosphorus (P)	0.026
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	518
TS N/mm2	570
EL%	27

TYPICAL IMPACT VALUES :

IV -20°C J	48

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F&H-fillet
2.6	350	55 ~ 85
3.2	350	120 ~ 160
4.0	450	160 ~ 200
5.0	550	200 ~ 240

SL-58

AWS A5.1 E7018
JIS Z3211 E4918
EN ISO 2560-A E 42 3 B 3 2

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-58 is an iron powder low hydrogen electrode for the welding of 50kgf/mm2 grade high tensile steel. The welding can be done with high deposition rate, good X-ray soundness and mechanical properties.

APPLICATIONS :

It is especially suitable for nuclear power stations, petroleum chemical plants, and heavy steel plates.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.07
Manganese (Mn)	1.38
Silicon (Si)	0.47
Phosphorus (P)	0.020
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	518
TS N/mm2	604
EL%	28

TYPICAL IMPACT VALUES :

IV -30°C J	156

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	150 ~ 200

SL-58M

AWS A5.1 E7018M
JIS Z3211 E4918
EN ISO 2560-A E 42 3 B 3 2

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-58M is an all-position iron powder low hydrogen electrode specially formulated to meet more stringent requirements of military specification MIL-E-0022200/10 for mechanical properties, coating moisture and diffusible hydrogen content. The welding can be done with high deposition rate, good X-ray soundness and mechanical properties.

APPLICATIONS :

SL-58M is designed for the welding of 50kgf/mm2 grade high tensile steel. It is especially suitable for nuclear power stations, petroleum chemical plants, and heavy steel plates.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Clean oil, rust and dust from the welding base metal.
3. Take the backstep method to prevent blowholes at the arc starting.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.090
Manganese (Mn)	1.53
Silicon (Si)	0.62
Phosphorus (P)	0.015
Sulphur (S)	0.012

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	495
TS N/mm2	565
EL%	30

TYPICAL IMPACT VALUES :

IV -30°C J	168

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	150 ~ 200

SLH-58

AWS A5.1 E7018-1 H4
JIS Z3211 E4918
EN ISO 2560-A E 46 4 B 3 2 H5

COVERED ELECTRODES FOR 490N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SLH-58 is a general purpose electrode for mild and low alloy steels by offering high deposition rate, good X-ray soundness, stable arc and less spatters. It also provides weld metals with excellent mechanical properties and impact toughness at low temperature (-40°C to -50°C) and low diffusible hydrogen.

APPLICATIONS :

This is an iron-powder low hydrogen electrode for all-position welding of 490N/mm2 grade high tensile steel. It is especially suitable for low alloy steels, medium carbon steels, heavy steel plates, cast steels, aluminum killed steel of LPG.

NOTE ON USAGE :

1. Rebake the electrodes at 300~350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Clean oil, dust and rust from the welding base metal.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.062
Manganese (Mn)	1.25
Silicon (Si)	0.49
Phosphorus (P)	0.018
Sulphur (S)	0.009

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	525
TS N/mm2	585
EL%	29

TYPICAL IMPACT VALUES :

IV -45°C J	102

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	150 ~ 200

SL-60

AWS A5.5 E8016-G
JIS Z3211 E5516-G
EN ISO 2560-A E 46 3 B 1 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-60 is a low hydrogen electrode for the welding of 550N/mm2 grade high tensile steel in all positions. It provides easy weld pool control, stable arc, less spatters and excellent mechanical properties.

APPLICATIONS :

This electrode is suitable for forging, structural steel, alloy steel, high pressure pipe, pressure vessel, ASTM A299/302/372, etc..

NOTE ON USAGE :

1. Rebake the electrodes at 300~350°C for 60 minutes and keep at 100~150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Clean oil, dust and rust from the welding base metal.
4. Impact value to be reduced while the heat input is excessive
5. Moving range of the electrode should be controlled within 3 times of the electrode's diameter while welding with weave method.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.081
Manganese (Mn)	1.27
Silicon (Si)	0.39
Phosphorus (P)	0.021
Sulphur (S)	0.008

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	539
TS N/mm2	637
EL%	29

TYPICAL IMPACT VALUES :

IV -30°C J	108

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	150 ~ 200

SL-80

AWS A5.5 E9016-G
JIS Z3211 E6216-G
EN 757 E 55 3 B 1 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-80 is a low hydrogen electrode for the welding of 620N/mm2 grade high tensile steel in all positions. It provides easy weld pool control, stable arc, less spatters and excellent mechanical properties.

APPLICATIONS :

It is suitable for shipbuilding, machine fabrication, offshore structure, pressure vessel, high pressure pipe. The base metal are including forging, cast iron, structural steel, steel pipe for heat transfer, pressure vessel, alloy steel, ASTM A202/486 Gr90/736 Gr3, etc..

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Clean oil, dust and rust from the welding base metal.
4. Impact value to be reduced while the heat input is excessive
5. Moving range of the electrode should be controlled within 3 times of the electrode's diameter while welding with weave method.
6. Preheating base metals at 100 ~ 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.11
Manganese (Mn)	1.15
Silicon (Si)	0.43
Phosphorus (P)	0.018
Sulphur (S)	0.009
Nickel (Ni)	0.77
Molybdenum (Mo)	0.26

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	590
TS N/mm2	705
EL%	24

TYPICAL IMPACT VALUES :

IV -30°C J	78

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F	Amp V & OH
2.6	350	55 ~ 85	50 ~ 80
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	150 ~ 200

SL-108M

AWS A5.5 E10018-M
JIS Z3211 E6918-N3M2
EN 757 E 62 5 1.5NiMo B 3 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-108M is an iron powder low hydrogen electrode designed for welding 690N/mm2 grade high tensile steel. It can obtain good heat resistance and great crack resistance because of its low hydrogen composition in the weld metal.

APPLICATIONS :

In addition to the welding before hardfacing, it is suitable for the welding of 640 ~ 735N/mm2 grade high tensile steel.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Backstep is the welding method to prevent blowholes during the arc starting
4. Preheating the plates at 100°C before welding

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.06
Manganese (Mn)	1.12
Silicon (Si)	0.32
Phosphorus (P)	0.015
Sulphur (S)	0.009
Nickel (Ni)	1.98
Chromium (Cr)	0.26
Molybdenum (Mo)	0.31

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	638
TS N/mm2	725
EL%	22

TYPICAL IMPACT VALUES :

IV -50°C J	60

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter	Length	Amp	
mm	mm	F	V & OH
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
4.8	400	180 ~ 240	-

SL-118M

AWS A5.5 E11018-M
JIS Z3211 E7618-N4M2
EN 757 E 69 5 Mn2NiCrMo B 3 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-118M is an iron power low hydrogen electrode designed for welding 780N/mm2 grade high tensile steel. It can obtain good heat resistance and excellent mechanical properties.

APPLICATIONS :

It is suitable for the welding of WEL TEN-80 high tensile steel as well.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Backstep is the welding method to prevent blowholes during the arc starting
4. Preheating the plates at 100°C before welding

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	1.42
Silicon (Si)	0.52
Phosphorus (P)	0.018
Sulphur (S)	0.008
Nickel (Ni)	1.62
Chromium (Cr)	0.38
Molybdenum (Mo)	0.32

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	695
TS N/mm2	785
EL%	23

TYPICAL IMPACT VALUES :

IV -50°C J	58

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 130	80 ~ 120
4.0	400	130 ~ 180	110 ~ 160
5.0	400	180 ~ 240	-

SL-110

AWS A5.5 E11016-G
JIS Z3211 E7616-G
EN 757 E 69 2 Mn2NiMo B 1 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-110 is a low hydrogen electrode designed for welding 690N/mm2 grade high tensile steel. It can obtain good heat resistance and excellent mechanical properties in all position because of its low hydrogen composition.

APPLICATIONS :

It is also used for build-up welding before hardfacing.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Backstep is the welding method to prevent blowholes during the arc starting
4. Preheating the plates at 100°C before welding

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.08
Manganese (Mn)	1.10
Silicon (Si)	0.25
Phosphorus (P)	0.016
Sulphur (S)	0.008
Nickel (Ni)	2.20
Chromium (Cr)	0.32
Molybdenum (Mo)	0.50

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	682
TS N/mm2	800
EL%	23

TYPICAL IMPACT VALUES :

IV -20°C J	80.0

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 130	80 ~ 115
4.0	400	130 ~ 180	110 ~ 160
4.8	400	180 ~ 240	-

SL-120

AWS A5.5 E12016-G
JIS Z3211 E8316-G
EN 757 E 79 2 Mn2NiCrMo B 1 2

COVERED ELECTRODES FOR ≧550N/mm2 HIGH TENSILE STEEL

DESCRIPTION :

SL-120 is a low hydrogen electrode for the welding of 830N/mm2 grade high tensile steel in all positions. Good crack resistance and mechanical properties, and good X-ray soundness can be secured because of the low hydrogen content of weld metal.

APPLICATIONS :

It is used for heat treatable low alloy steels, such as SCM21/4 chrome-molybdenum steel、SNCM8 Ni-Cr-Mo steel, high tensile steels such as WEL-TEN80/80C/80P/80E、ASTM A486 Gr120/A508 Gr5a.4a/A543 GrB3.C, etc..

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Take the backstep method to prevent blowholes at the arc starting.
3. Clean oil, dust and rust from the welding base metal.
4. Preheating base metals at 150-200°C
5. Moving range of the electrode should be controlled within 3 times of the electrode's diameter while welding with weave method.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.08
Manganese (Mn)	1.18
Silicon (Si)	0.38
Phosphorus (P)	0.016
Sulphur (S)	0.008
Nickel (Ni)	2.58
Chromium (Cr)	0.32
Molybdenum (Mo)	0.52

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	792
TS N/mm2	910
EL%	23

TYPICAL IMPACT VALUES :

IV -20°C J	72

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 130	80 ~ 115
4.0	400	130 ~ 180	110 ~ 160
4.8	400	180 ~ 240	-

SC-70A1

AWS A5.5 E7010-A1
JIS Z3223 E4910-1M3
EN ISO 3580-A E Mo B 2 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SC-70A1 is a low hydrogen electrode for the welding of 490N/mm2 grade high tensile steel in all positions. Good crack resistance, stable arc, deep penetration and great welding performances can be obtained.

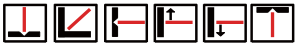
APPLICATIONS :

It can be used for welding of 0.5%Mo steel used for high temperature and high pressure boilers, chemical industries, oil refining industries and turbine casting.

NOTE ON USAGE :

1. Rebake the electrodes at 70 ~ 80°C for 30 ~ 60 minutes before use.
2. Clean oil, dust and rust from the welding base metal.
3. Proper preheat at 100 ~ 200°C and PWHT at 620 ~ 680°C.

WELDING POSITION:



TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.093
Manganese (Mn)	0.41
Silicon (Si)	0.23
Phosphorus (P)	0.016
Sulphur (S)	0.009
Molybdenum (Mo)	0.55

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	510
TS N/mm2	570
EL%	27

HEAT TREATMENT :

620°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	70 ~ 120	70 ~ 110
4.0	400	110 ~ 160	90 ~ 150
5.0	400	150 ~ 200	120 ~ 180

SR-76A1

AWS A5.5 E7016-A1
JIS Z3223 E4916-1M3
EN ISO 3580-A E Mo B 1 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-76A1 is a low hydrogen electrode alloyed with 0.5% Mo for welding steels of pressure vessels.

APPLICATIONS :

It is suitable for welding 0.5%Mo steel used at high temperature and high pressure (e.g. ATPA12, A335-P1 of Steel Pipes, STBA 12, A209-T1, A161-T1 of heat exchanger, A217-WCI casting steel and A182-F1, A366-F1 of forging steels).

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 100 ~ 200°C and PWHT at 620 ~ 680°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.075
Manganese (Mn)	0.720
Silicon (Si)	0.480
Phosphorus (P)	0.015
Sulphur (S)	0.008
Molybdenum (Mo)	0.320

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	505
TS N/mm2	582
EL%	32

HEAT TREATMENT :

620°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 130	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-78A1

AWS A5.5 E7018-A1
JIS Z3223 E4918-1M3
EN ISO 3580-A E Mo B 3 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-78A1 is an iron powder low hydrogen electrode alloyed with 0.5% Mo for welding chemical industries, oil refinery plants and turbine casting steels. It can provide high welding efficiency because of additional iron powder.

APPLICATIONS :

It is suitable for welding 0.5%Mo steel used at high temperature and high pressure (e.g. ATPA12, A335-P1 of Steel Pipes, STBA 12, A209-T1, A161-T1 of heat exchanger, A217-WCI casting steel and A182-F1, A366-F1 of forging steels).

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 100 ~ 200°C and PWHT at 620 ~ 680°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.082
Manganese (Mn)	0.800
Silicon (Si)	0.520
Phosphorus (P)	0.016
Sulphur (S)	0.009
Molybdenum (Mo)	0.550

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	488
TS N/mm2	580
EL%	31

HEAT TREATMENT :

620°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 130	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-86B2

AWS A5.5 E8016-B2
JIS Z3223 E5516-1CM
EN ISO 3580-A E CrMo1 B 1 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-86B2 is a basic coated low hydrogen electrode designed for welding 1.25%Cr-0.5%Mo heat resistant steels with operating temperature above 550C. The electrode can weld in all position with characteristics of quiet and stable arc, as well as few spatter.

APPLICATIONS :

The weld metal SR-86B2 can be applied for ASTM A193 Gr. B7; A335 Gr. P11 a. P12; A217 Gr. WC6.; A336 Gr. F12.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 150 ~ 300°C and PWHT at 650 ~ 700°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.510
Silicon (Si)	0.330
Phosphorus (P)	0.016
Sulphur (S)	0.012
Chromium (Cr)	1.200
Molybdenum (Mo)	0.520

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	532
TS N/mm2	626
EL%	26

HEAT TREATMENT :

690°C X 1hr

APPROVALS :

ABS

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 140	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-88B2

AWS A5.5 E8018-B2
JIS Z3223 E5518-1CM
EN ISO 3580-A E CrMo1 B 3 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-88B2 is an iron powder low hydrogen electrode designed for welding heat resistant boiler, plates and tubes. The electrode coated by iron powder marks characteristics of high working efficiency so that it is suitable for thick pipes welding and cast steel repair.

APPLICATIONS :

As its weld metal contains 1.25%Cr-0.5%Mo, SR-86B2 is suitably applied for ASTM A193 Gr. B7; A335 Gr. P11 a. P12; A217 Gr. WC6.; A336 Gr. F12.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 150 ~ 300°C and PWHT at 650 ~ 700°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.080
Manganese (Mn)	0.590
Silicon (Si)	0.280
Phosphorus (P)	0.013
Sulphur (S)	0.011
Chromium (Cr)	1.180
Molybdenum (Mo)	0.490

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	590
TS N/mm2	670
EL%	26

HEAT TREATMENT :

690°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	90 ~ 140	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-96B3

AWS A5.5 E9016-B3
JIS Z3223 E6216-2C1M
EN ISO 3580-A E CrMo2 B 1 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-96B3 is a basic coated low hydrogen electrode designed for welding 2.25%Cr-1%Mo heat resistant steels with operating temperature above 550C. The electrode can weld in all position with characteristics of quiet and stable arc, as well as few spatter.

APPLICATIONS :

The weld metal of SR-96B3 can be applied for ASTM A335 Gr. P22; A217 Gr. WC 9.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 200 ~ 350°C and PWHT at 680 ~ 730°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.520
Silicon (Si)	0.310
Phosphorus (P)	0.015
Sulphur (S)	0.012
Chromium (Cr)	2.120
Molybdenum (Mo)	1.070

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	605
TS N/mm2	722
EL%	25

HEAT TREATMENT :

690°C X 1hr

APPROVALS :

ABS

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	90 ~ 140	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-98B3

AWS A5.5 E9018-B3
JIS Z3223 E6218-2C1M
EN ISO 3580-A E CrMo2 B 3 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-98B3 is an iron powder low hydrogen electrode designed for welding creep resistant boiler, plates and tubes. The electrode can provide reliable creep rupture properties for the whole service life of a boiler plant. Thanks to its high working efficiency contributed from iron powder, SR-96B3 is suitable for welding thick pipes and steel casting and gets good weldability in all position.

APPLICATIONS :

As its weld metal contains 2.25%Cr-1%Mo, SR-98B2 is suitably applied for ASTM A335 Gr. P22; A217 Gr. WC 9.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 200 ~ 350°C and PWHT at 680 ~ 730°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.490
Silicon (Si)	0.260
Phosphorus (P)	0.016
Sulphur (S)	0.012
Chromium (Cr)	2.150
Molybdenum (Mo)	1.060

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	629
TS N/mm2	692
EL%	25

HEAT TREATMENT :

690°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter	Length	Amp	
mm	mm	F	V & OH
3.2	350	90 ~ 140	80 ~ 120
4.0	400	140 ~ 190	120 ~ 160
5.0	400	190 ~ 240	-

SR-86B6

AWS A5.5 E8016-B6
JIS Z3223 E5516-5CM
EN ISO 3580-A E CrMo5 B 1 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-86B6 is a basic low hydrogen electrode whose weld metal consists of 5%Cr-0.5%Mo. It is designed for X12CrMo5 (5%Cr-0.5%Mo) steel, such as ASTM A387 Gr. 5 for refineries, petro-chemical and power plants.

APPLICATIONS :

As its weld metal contains 5%Cr-0.5%Mo, SR-86B6 is suitably applied for ASTM A213 Gr. T5; A217 Gr. C5; A335 Gr. P5

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 250 ~ 350°C and PWHT at 710 ~ 760°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.080
Manganese (Mn)	0.550
Silicon (Si)	0.300
Phosphorus (P)	0.019
Sulphur (S)	0.013
Chromium (Cr)	5.580
Molybdenum (Mo)	0.570

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	674
TS N/mm2	745
EL%	22

HEAT TREATMENT :

740°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	80 ~ 120	70 ~ 110
4.0	400	100 ~ 150	80 ~ 130
5.0	400	160 ~ 210	-

SR-86B8

AWS A5.5 E8016-B8
JIS Z3223 E5516-9C1M
EN ISO 3580-A E CrMo9 B 1 2

COVERED ELECTRODES FOR HEAT-RESISTANT LOW-ALLOY STEEL

DESCRIPTION :

SR-86B8 is a low hydrogen electrode whose weld metal consists of 9%Cr-1%Mo. It is designed for high temperature steel and steels for hot hydrogen services, particularly in petrochemical industry. The electrode can be approved for its high tensile strength, good toughness and great heat resistance.

APPLICATIONS :

As its weld metal contains 9%Cr-1%Mo, SR-86B8 is suitably appied for ASTM A217 Gr. C12; A 234 Gr. WP9; A335 Gr. P9

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Proper preheat at 250 ~ 350°C and PWHT at 710 ~ 760°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.080
Manganese (Mn)	0.530
Silicon (Si)	0.290
Phosphorus (P)	0.016
Sulphur (S)	0.013
Chromium (Cr)	9.880
Molybdenum (Mo)	0.900

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	560
TS N/mm2	670
EL%	24

HEAT TREATMENT :

740°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	80 ~ 120	70 ~ 110
4.0	400	100 ~ 150	80 ~ 130
5.0	400	160 ~ 210	-

SN-86C1

AWS A5.5 E8016-C1
JIS Z3211 E5516-N5
EN ISO 2560-A E 46 6 2Ni B 1 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-86C1 is a nickel-alloyed electrode designed for the welding of low-alloyed steels with impact requirements down to -60°C. The composition of SN-86C1 weld metal consists of 2.5%Ni to make low temperature impact properties obtained.

APPLICATIONS :

This weld metal comprising 2.5%Ni makes this electrode particularly suited for Aluminum Killer Steel and 2.5%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Take the backstep method to start welding
5. Proper preheat at 100 ~ 150°C and PWHT at 600 ~ 630°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.790
Silicon (Si)	0.430
Phosphorus (P)	0.018
Sulphur (S)	0.009
Nickel (Ni)	2.620

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	484
TS N/mm2	576
EL%	32

HEAT TREATMENT :

610°C X 1hr

TYPICAL IMPACT VALUES :

IV -60°C (J)	64

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-88C1

AWS A5.5 E8018-C1
JIS Z3211 E5518-N5
EN ISO 2560-A E 46 6 2Ni B 3 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-88C1 is an iron power nickel-alloyed electrode designed for the welding of low-alloyed steels with impact requirements down to -60°C. Its coating contains iron power to increase working efficiency. The weld metal of 2.5%Ni can make low temperature impact properties obtained.

APPLICATIONS :

This weld metal contains 2.5%Ni so that it makes this electrode particularly suited for Aluminum Killer Steel and 2.5%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Adopt the backstep method to start arc
5. Proper preheat at 100 ~ 150°C and PWHT at 600 ~ 630°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.080
Manganese (Mn)	0.850
Silicon (Si)	0.510
Phosphorus (P)	0.016
Sulphur (S)	0.012
Nickel (Ni)	2.550

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	480
TS N/mm2	580
EL%	33

HEAT TREATMENT :

610°C X 1hr

TYPICAL IMPACT VALUES :

IV -60°C (J)	61

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-86C2

AWS A5.5 E8016-C2
JIS Z3211 E5516-N7
EN ISO 2560-A E 46 6 3Ni B 1 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-86C2 is an nickel-alloyed electrode designed for the welding of 3.5%Ni steel or LPG tanks with impact requirements down to -73°C. In addition to its good welding performance in all position, this electrode contains 3.5%Ni in the weld metal to obtain the qualified impact value at -73°C.

APPLICATIONS :

This weld metal contains 3.5%Ni so that it makes this electrode particularly suited for LPG tanks or 3.5%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 3500 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Adopt the backstep method to start arc
5. Proper preheat at 100 ~ 150°C and PWHT at 600 ~ 630°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.080
Manganese (Mn)	0.940
Silicon (Si)	0.510
Phosphorus (P)	0.018
Sulphur (S)	0.013
Nickel (Ni)	3.250

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	483
TS N/mm2	586
EL%	31

HEAT TREATMENT :

610°C X 1hr

TYPICAL IMPACT VALUES :

IV -75°C (J)	86

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-88C2

AWS A5.5 E8018-C2
JIS Z3211 E5518-N7
EN ISO 2560-A E 46 6 3Ni B 3 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-88C2 is an iron powder low hydrogenr nickel-alloyed electrode designed for the welding of 3.5%Ni steel or LPG tanks with impact requirements down to -73°C. Its coating contains iron powder to increase its working effencicy. Good impact values can be obtained at -73°C.

APPLICATIONS :

This weld metal contains 3.5%Ni so that it makes this electrode particularly suited for LPG tanks or 3.5%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Adopt the backstep method to start arc
5. Proper preheat at 100 ~ 150°C and PWHT at 600 ~ 630°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.900
Silicon (Si)	0.560
Phosphorus (P)	0.015
Sulphur (S)	0.010
Nickel (Ni)	3.400

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	470
TS N/mm2	570
EL%	32

HEAT TREATMENT :

610°C X 1hr

TYPICAL IMPACT VALUES :

IV -75°C	81

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-86C3

AWS A5.5 E8016-C3
JIS Z3211 E5516-N2
EN ISO 2560-A E 46 4 1Ni B 1 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-86C3 is an nickel-alloyed electrode designed for the welding of 1%Ni steel or high tensile steel with impact requirements down to -45°C. In addition to its good welding performance in all position, this electrode contains 1%Ni in the weld metal to obtain the qualified impact value and good X-ray performance and usability.

APPLICATIONS :

This weld metal contains 1%Ni so that it makes this electrode particularly suited for high tensile steel or 1%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Adopt the backstep method to start arc
5. Proper preheat at 100 ~ 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.060
Manganese (Mn)	0.940
Silicon (Si)	0.420
Phosphorus (P)	0.018
Sulphur (S)	0.012
Nickel (Ni)	0.960
Chromium (Cr)	0.090
Molybdenum (Mo)	0.230

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	514
TS N/mm2	598
EL%	28

TYPICAL IMPACT VALUES :

IV -40°C	95

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-88C3

AWS A5.5 E8018-C3
JIS Z3211 E5518-N2
EN ISO 2560-A E 46 4 1Ni B 3 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-88C3 is a nickel-alloyed electrode designed for the welding of 1%Ni steel or high tensile steel with impact requirements down to -45°C. In addition to its great welding performance in all position, its coating contains iron powder to increase its working efficacy. X-ray soundness and usability are good.

APPLICATIONS :

This weld metal contains 1%Ni so that it makes this electrode particularly suited for LPG tanks or 1%Ni steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Set up current in a recommended range to obtain impact value
4. Adopt the backstep method to start arc
5. Proper preheat at 100 ~ 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.070
Manganese (Mn)	0.910
Silicon (Si)	0.600
Phosphorus (P)	0.017
Sulphur (S)	0.012
Nickel (Ni)	1.020
Chromium (Cr)	0.110
Molybdenum (Mo)	0.200

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	480
TS N/mm2	560
EL%	29

TYPICAL IMPACT VALUES :

IV -40°C (J)	106

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	350	60 ~ 90	50 ~ 80
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-88G

AWS A5.5 E8018-G
JIS Z3211 E5518-G
EN ISO 2560-A E 50 5 2Ni B 3 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-88G is an iron powder low hydrogen electrode designed for welding 540N/mm2 high tensile steel, whose weld metal contains 1.5% Ni able to reach the impact value requirement under -50°C. Its welding in all position can provide stable arc and good slag removal.

APPLICATIONS :

SN-88G is used for the welding of Aluminum Killed Steel at LPG storage tank, ASTM A537C2 Steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. To attain the excellent impact value shall be avoided excessive heat input

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.060
Manganese (Mn)	0.850
Silicon (Si)	0.250
Phosphorus (P)	0.017
Sulphur (S)	0.014
Nickel (Ni)	1.930

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	536
TS N/mm2	596
EL%	28

TYPICAL IMPACT VALUES :

IV -45°C (J)	131

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SN-98G

AWS A5.5 E9018-G
JIS Z3211 E6218-G
EN 757 E 55 5 1NiMo B 3 2

COVERED ELECTRODES FOR LOW TEMPERATURE-SERVICE LOW-ALLOY STEEL

DESCRIPTION :

SN-98G is an iron powder low hydrogen electrode designed for welding of 590N/mm2 grade high tensile strength steel in the low temperature services. The electrode can provide reliable impact value under -40°C~-50°C with 1.0% Ni in the weld metal, but also excellent weldability on stable arc, X-Ray soundness and easy slag removal in all position welding.

APPLICATIONS :

SN-98G is suitably applied for low temperature services including LPG storage tank and Al-Killed steels.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. To attain the excellent impact value shall be avoided excessive heat input

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.060
Manganese (Mn)	1.210
Silicon (Si)	0.490
Phosphorus (P)	0.016
Sulphur (S)	0.006
Nickel (Ni)	1.090
Molybdenum (Mo)	0.39

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	584
TS N/mm2	663
EL%	26

TYPICAL IMPACT VALUES :

IV -45°C (J)	52

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SW-78W1

AWS A5.5 E7018-W1
JIS Z3214 DA5016-G
EN --

COVERED ELECTRODES FOR ATMOSPHERIC CORRSION RESISTANT STEEL

DESCRIPTION :

SW-78W1 is a NiCuCr alloyed coated electrode used for the welding of 490N/mm2 grade high tensile weathering steel. This electrode has resistibility to the atmospheric corrosion, good X-ray soundness, and good crack resistance in all positions welding.

APPLICATIONS :

The weld metal of SW-78W1 consists of Cu and Ni which is suitable for 490N/mm2 high tensile steel (ASTM A588, COR-TEN A, B), and also for SPA-H, SMA 490 steel.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Adopt backstep method to start arc to prevent porosity

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.060
Manganese (Mn)	0.620
Silicon (Si)	0.450
Phosphorus (P)	0.018
Sulphur (S)	0.008
Nickel (Ni)	0.330
Chromium (Cr)	0.19
Copper (Cu)	0.46

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	517
TS N/mm2	582
EL%	30

TYPICAL IMPACT VALUES :

IV -20°C (J)	150

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter	Length	Amp	
mm	mm	F	V & OH
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SW-88W2

AWS A5.5 E8018-W2
JIS Z3214 DA5816-W
EN --

COVERED ELECTRODES FOR ATMOSPHERIC CORRSION RESISTANT STEEL

DESCRIPTION :

SW-88W2 is a NiCuCr alloyed coated electrodes is designed for welding weathering resistant constructional steels such as CORALDUR, CORTEN, KORRALPIN and PANTINAX. It generates excellent mechanical property and high crack resistance while subjected to resistant in all positions welding.

APPLICATIONS :

The weld metal contains Ni, Cu and Cr. It is suitable for 590N/mm2 grade high tensile steel ASTM A588, A242 and SMA 570W, P.

NOTE ON USAGE :

1. Rebake the electrodes at 350 ~ 400°C for 60 minutes and keep at 100 ~ 150°C before use.
2. Keep the arc as short as possible.
3. Adopt backstep method to start arc to prevent porosity

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.070
Manganese (Mn)	0.630
Silicon (Si)	0.410
Phosphorus (P)	0.017
Sulphur (S)	0.014
Nickel (Ni)	0.630
Chromium (Cr)	0.55
Copper (Cu)	0.55

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	562
TS N/mm2	616
EL%	28

TYPICAL IMPACT VALUES :

IV -20°C (J)	143

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter	Length	Amp	
mm	mm	F	V & OH
3.2	350	100 ~ 140	90 ~ 130
4.0	400	140 ~ 180	120 ~ 160
5.0	400	180 ~ 230	-

SS-307

AWS A5.4 E307-16
JIS Z3221 ES307-16
EN 1600 E 18 9 MnMo R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-307 gives a full austenite structure containing 4-5% Mn. Weld metal is highly resistant to impact, wearing and hot cracking. It is suitable for forming a buffer layer for hardfacing and joining of armour steel plates that are low hardenable and work-hardening austensitic Mn steels. It can also be used for dissmilar joining C-Mn steels with austenitic and ferritic stainless steels.

APPLICATIONS :

Typical applications include stainless steel piping in refineries and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.089
Manganese (Mn)	4.30
Silicon (Si)	0.55
Phosphorus (P)	0.028
Sulphur (S)	0.008
Nickel (Ni)	9.62
Chromium (Cr)	19.50
Molybdenum (Mo)	0.800

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	610
EL%	42

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-307HM

AWS --
JIS --
EN --

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-307HM gives a full nonmagnetic austenite structure containing 6% Mn. Weld metal is highly resistant to impact, wearing and hot cracking. It is especially suitable for military usage, such as mine sweepers. Preheating or postweld heat treatment is not required.

APPLICATIONS :

It can be used for 18%Cr-8%Ni stainless steel, 14% Mn steel, the steels with poor weldability and the buffer layer welding.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.098
Manganese (Mn)	5.5
Silicon (Si)	0.45
Phosphorus (P)	0.029
Sulphur (S)	0.010
Nickel (Ni)	8.8
Chromium (Cr)	19.70

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	615
EL%	42

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-308

AWS A5.4 E308-16
JIS Z3221 ES308-16
EN 1600 E 19 9 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-308 is a rutile electrode designed for welding type 308L base metal with low or medium carbon content. The SS-308L contains low carbon to avert carbide precipitation during welding as well as weld service. Excellent for welding 18Cr-8Ni steels.

APPLICATIONS :

Typical applications include stainless steel piping in refineries, oil and gas industries, and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.058
Manganese (Mn)	1.28
Silicon (Si)	0.62
Phosphorus (P)	0.028
Sulphur (S)	0.010
Nickel (Ni)	9.43
Chromium (Cr)	19.70

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	591
EL%	40

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-308H

AWS A5.4 E308H-16
JIS Z3221 ES308H-16
EN 1600 E 19 9 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-308H is a rutile electrode depositing 19Cr-10Ni with carbon in the range of 0.04-0.08% for for welding unstabilized austenitic stainless steels such as 302, 304, 305, especially for 304H with carbon range 0.04-0.08%, provide greater corrosion resistance than base metals on which they are applied.

APPLICATIONS :

Typical applications include chemical, petrochemical industries as well as distillery, dairy and restaurant equipment.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.06
Manganese (Mn)	1.12
Silicon (Si)	0.55
Phosphorus (P)	0.029
Sulphur (S)	0.012
Nickel (Ni)	9.38
Chromium (Cr)	19.70

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	594
EL%	39

APPROVALS :

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SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-308L

AWS A5.4 E308L-16
JIS Z3221 ES308L-16
EN 1600 E 19 9 L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-308L is a rutile electrode designed for welding type 308L base metal with low or medium carbon content. The SS-308L contains low carbon to avert carbide precipitation during welding as well as weld service. Excellent for welding 18Cr-8Ni steels.

APPLICATIONS :

Typical applications include stainless steel piping in refineries, oil and gas industries, and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.024
Manganese (Mn)	1.32
Silicon (Si)	0.58
Phosphorus (P)	0.030
Sulphur (S)	0.009
Nickel (Ni)	9.51
Chromium (Cr)	19.94

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	585
EL%	41

APPROVALS :

CE,LR

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-309

AWS A5.4 E309-16
JIS Z3221 ES309-16
EN 1600 E 23 12 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-309 is a titanic electrode suitable for welding of 22Cr-12%Ni steel, dissimilar-metal joint, dissimilar-metal joint and surfacing of mild steel.

APPLICATIONS :

Typical applications include stainless steel piping in refineries and chemical plants. Corrosion resistance overlay on carbon steel, welding of carbon steel of poor weldability.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds
4. Use lower current for dissimilar-metal joint.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.060
Manganese (Mn)	1.24
Silicon (Si)	0.67
Phosphorus (P)	0.026
Sulphur (S)	0.009
Nickel (Ni)	12.93
Chromium (Cr)	24.20

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	615
EL%	37

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-309L

AWS A5.4 E309L-16
JIS Z3221 ES309L-16
EN 1600 E 23 12 L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-309L is a titanic electrode suitable for welding of 22Cr-12%Ni steel, dissimilar-metal joint, dissimilar-metal joint and surfacing of mild steel.

APPLICATIONS :

Typical applications include stainless steel piping in refineries and chemical plants. Corrosion resistance overlay on carbon steel, welding of carbon steel of poor weldability.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds
4. Use lower current for dissimilar-metal joint.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.032
Manganese (Mn)	1.26
Silicon (Si)	0.65
Phosphorus (P)	0.028
Sulphur (S)	0.012
Nickel (Ni)	13.44
Chromium (Cr)	24.12

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	608
EL%	36

APPROVALS :

CE,LR

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-309MoL

AWS A5.4 E309LMo-16
JIS Z3221 ES309LMo-16
EN 1600 E 23 12 2 L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-309MoL is a rutile electrode used as a buffer layer in welding acid resisting clad steels with better crack resistance and corrosion resistance. It is also suitable for welding dissimilar steels and steels difficult to weld.

APPLICATIONS :

Typical applications include stainless steel piping in refineries and chemical plants. Corrosion resistance overlay on carbon steel, welding of carbon steel of poor weldability.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.031
Manganese (Mn)	0.85
Silicon (Si)	0.81
Phosphorus (P)	0.029
Sulphur (S)	0.009
Nickel (Ni)	13.20
Chromium (Cr)	22.79
Molybdenum (Mo)	2.24

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	661
EL%	36

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-310

AWS A5.4 E310-16
JIS Z3221 ES310-16
EN 1600 E 25 20 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-310 is a basic rutile electrode for welding heat resistant steels like 25Cr/20Ni. Weld metal resists scaling up to 1100-1150°C. It can also be used for welding air hardening steels such as armour plate and for welding base metals of unknown composition, as well as dissimilar metals.

APPLICATIONS :

Welding or build up analogue heat resisting forged steels used in annealing and hardening process in marine, re-conditioning and refurbishment industries.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.110
Manganese (Mn)	1.62
Silicon (Si)	0.28
Phosphorus (P)	0.027
Sulphur (S)	0.012
Nickel (Ni)	21.23
Chromium (Cr)	26.75

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	594
EL%	36

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-312

AWS A5.4 E312-16
JIS Z3221 ES312-16
EN 1600 E 29 9 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-312 is a lime titanic electrode with 29Cr-9Ni% chemical composition containing large content of ferrite which made it good crack resistance. It is suitable for dissimilar-metal joint and hardenable steels, steel armor and generally hard to weld steels.

APPLICATIONS :

Typical applications include marine, re-conditioning and refurbishment industries.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds
4. Use lower current for dissimilar-metal joint.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.11
Manganese (Mn)	1.03
Silicon (Si)	0.82
Phosphorus (P)	0.026
Sulphur (S)	0.012
Nickel (Ni)	10.13
Chromium (Cr)	28.87

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	813
EL%	28

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-316

AWS A5.4 E316-16
JIS Z3221 ES316-16
EN 1600 E 19 12 2 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-316 is a rutile electrode. It possesses properties similar to SS-316 except with a much lower carbon content which reduces susceptibility to sensitization during welding. The welds show high resistance to corrosion and fissuring. This makes it outstanding choice for critical applications. Excellent for welding stainless steel types 316, 316-L and 318.

APPLICATIONS :

Typical applications include stainless steel piping and vessels in oil and gas industry, refineries and chemical and petro-chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.051
Manganese (Mn)	1.26
Silicon (Si)	0.81
Phosphorus (P)	0.029
Sulphur (S)	0.012
Nickel (Ni)	11.46
Chromium (Cr)	19.12
Molybdenum (Mo)	2.23

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	558
EL%	38

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-316L

AWS A5.4 E316L-16
JIS Z3221 ES316L-16
EN 1600 E 19 12 3 L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-316L is a rutile electrode. It possesses properties similar to SS-316 except with a much lower carbon content which reduces susceptibility to sensitization during welding. The welds show high resistance to corrosion and fissuring. This makes it outstanding choice for critical applications. Excellent for welding stainless steel types 316, 316-L and 318.

APPLICATIONS :

Typical applications include stainless steel piping and vessels in oil and gas industry, refineries and chemical and petro-chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.027
Manganese (Mn)	1.41
Silicon (Si)	0.63
Phosphorus (P)	0.031
Sulphur (S)	0.012
Nickel (Ni)	11.66
Chromium (Cr)	19.43
Molybdenum (Mo)	2.29

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	551
EL%	39

APPROVALS :

CE,LR

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-317L

AWS A5.4 E317L-16
JIS Z3221 ES317L-16
EN 1600 E 19 13 4 N L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-317L is a rutile electrode. It has increased molybdenum content for good corrosion resistibility in deoxidizing atmosphere containing nitroxide and sulfide. It also has higher tensile strength, better corrosion resistance and improved high-temperature creep strength than 316-type electrodes.

APPLICATIONS :

Typical applications include stainless steel piping and vessels in oil and gas industry, refineries and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.03
Manganese (Mn)	1.45
Silicon (Si)	0.42
Phosphorus (P)	0.030
Sulphur (S)	0.012
Nickel (Ni)	12.49
Chromium (Cr)	20.12
Molybdenum (Mo)	3.52

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	597
EL%	39

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-318

AWS A5.4 E318-16
JIS Z3221 ES318-16
EN 1600 E 19 12 3 Nb R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-318 is a niobium-bearing rutile electrode for Ti and Nb stabilized AISI 318 or similar steels. It has good corrosion resistance to sulfuric acid and organic acid at operating temperature up to 400°C . It is suitable for welding as buffer layers on unalloyed steels prior to jointing to austenitic grades.

APPLICATIONS :

Typical applications include corrosion resistant stainless steel piping and vessels in oil and gas industry, refineries and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.05
Manganese (Mn)	0.87
Silicon (Si)	0.75
Phosphorus (P)	0.029
Sulphur (S)	0.009
Nickel (Ni)	11.45
Chromium (Cr)	17.91
Molybdenum (Mo)	2.53
Niobium (Nb)	0.45

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	589
EL%	39

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-347

AWS A5.4 E347-16
JIS Z3221 ES347-16
EN 1600 E 19 9 Nb R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-347 is a niobium-bearing rutile electrode for Ti and Nb stabilized 18Cr-8Ni steels especially for high temperature applications. The intergranular corrosion resistance is better than 308-type electrodes. It is used for welding types 347, 321 steels used in steam or utility applications up to 760°C.

APPLICATIONS :

Typical applications include stainless steel piping, boiler and gas turbine in steam generation and power plant industries.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.038
Manganese (Mn)	1.41
Silicon (Si)	0.52
Phosphorus (P)	0.030
Sulphur (S)	0.011
Nickel (Ni)	9.60
Chromium (Cr)	19.80
Niobium (Nb)	0.42

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	643
EL%	37

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SS-385

AWS A5.4 E385-16
JIS Z3221 ES385-16
EN 1600 E 20 25 5 Cu N L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-385 is an electrode designed for welding high alloyed, fully austenitic stainless steels such as W.-Nr. 1.4539 (ASTM B-625 and 904L), which have high corrosion resistance in sulphuric and phosphoric acids and good pitting resistance in acidic solutions chlorides and fluorides, such as seawater. This electrode containing a weld metal of a fully austenitic low carbon with molybdenum and copper can also be used for surfacing mild and low-alloyed steel.

APPLICATIONS :

This electrode can have application for tanks and process vessels, piping systems, agitators, rotors, cast pumps and valves for the use in the fertilizer, phosphoric and sulphuric environments.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.027
Manganese (Mn)	1.62
Silicon (Si)	0.49
Phosphorus (P)	0.025
Sulphur (S)	0.011
Nickel (Ni)	24.67
Chromium (Cr)	20.42
Niobium (Nb)	4.35
Molybdenum (Mo)	1.46
Copper (Cu)	

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	577
EL%	36

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	50 ~ 85	45 ~ 80
3.2	350	80 ~ 120	70 ~ 110
4.0	350	100 ~ 150	90 ~ 135
5.0	350	140 ~ 180	-

SOREX®
The Professional Quality

SS-410

AWS A5.4 E410-16
JIS Z3221 ES410-16
EN 1600 E 13 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-410 is used to give a ferritic weld metal of 13% Cr type for welding and building up of ferritic-martensitic steels with good oxidization resistance.

APPLICATIONS :

Typical applications include constructions exposed to aggressive sulphuric gases in refineries, oil and gas industries, and chemical plants.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Preheating 200 ~ 400°C, interpass temperature 180 ~ 250°C and postweld heat treatment at 700 ~ 760°C.

4. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.030
Manganese (Mn)	0.41
Silicon (Si)	0.53
Phosphorus (P)	0.028
Sulphur (S)	0.015
Nickel (Ni)	0.15
Chromium (Cr)	12.38

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	540
EL%	22.0

HEAT TREATMENT :

730°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 85	60 ~ 80
3.2	350	80 ~ 120	65 ~ 105
4.0	350	100 ~ 150	95 ~ 140
5.0	350	140 ~ 180	-

SS-410NM

AWS A5.4 E410NiMo-16
JIS Z3221 ES410NiMo-16
EN 1600 E 13 4 R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-410NM is a coated 12%Cr-5%Ni-0.5%Mo alloyed electrode suitable for all position welding of 13% chromium ferritic steels. This electrode features less spatter, easy slag removal and smooth arc on DC+.

APPLICATIONS :

SS-410NM provides better as-welded toughness than SS-410, used for welding ASTM CA6NM (JIS SCS6, SCS5) casting, as well as 410, 410S and 405 base metals.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Preheating 100 ~ 150°C and postweld heat treatment at 600 ~ 620°C.
3. Use stainless steel wire brush for cleaning of slags
4. Follow the recommended welding parameters to achieve good sound welds
5. Adopt low current and short arc

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.030
Manganese (Mn)	0.25
Silicon (Si)	0.32
Phosphorus (P)	0.028
Sulphur (S)	0.015
Nickel (Ni)	4.58
Chromium (Cr)	11.46
Molybdenum (Mo)	0.53

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

YP N/mm2	860
TS N/mm2	988
EL%	19

HEAT TREATMENT :

620°C X 1hr

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 85	60 ~ 80
3.2	350	80 ~ 120	65 ~ 105
4.0	350	100 ~ 150	95 ~ 140
5.0	350	140 ~ 180	-

SS-2209

AWS A5.4 E2209-16
JIS Z3221 ES2209-16
EN 1600 E 22 9 3 N L R 1 2

COVERED ELECTRODES FOR STAINLESS STEEL

DESCRIPTION :

SS-2209 is designed to weld duplex stainless steels such as UNS S31803 (Alloy 2205) with excellent pitting corrosion resistance, stress corrosion resistance and crack resistance. The weld metal can be applied for operation temperature up to 250°C and is resistant in chloride containing media against pitting corrosion as well as crevice and stress corrosion.

APPLICATIONS :

Typical applications include pumps, vessels, heat exchanger, chemical equipments and pipes processing chloride containing solutions.

NOTE ON USAGE :

1. Rebake the electrodes at 250 ~ 300°C for 1 hour and keep it at 100 ~ 150°C prior to use.
2. Use stainless steel wire brush for cleaning of slags
3. Follow the recommended welding parameters to achieve good sound welds

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.030
Manganese (Mn)	0.89
Silicon (Si)	0.55
Phosphorus (P)	0.029
Sulphur (S)	0.013
Nickel (Ni)	8.83
Chromium (Cr)	22.57
Molybdenum (Mo)	3.05
Nitrogen (N)	0.13

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	760
EL%	30

APPROVALS :

CE

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 85	60 ~ 80
3.2	350	80 ~ 120	65 ~ 105
4.0	350	100 ~ 150	95 ~ 140
5.0	350	140 ~ 180	-

SN-55

AWS A5.15 ENiFe-CI
JIS Z3252 DFCNiFe
EN --

COVERED ELECTRODES FOR CAST IRON

DESCRIPTION :

SN-55 is a graphite coated electrode with approximately 50% iron and 50% nickel, which offers several advantages over conventional "straight" nickel electrodes. It deposits stronger and more ductile weld metal. The weld metal deposit has better resistance to hot cracking, lower thermal expansion and lower cost that those of "straight" nickel electrode deposits.

APPLICATIONS :

Typical applications include welding of castings found in many repair and refurbishment shops of mining equipment, engine blocks, marine equipment and other heavy manufacturing equipment.

NOTE ON USAGE :

1. Pre-heating and maintainance of interpass temperature of 300°C is normally required
2. Follow the recommended welding parameters and maintain short arc length
3. Rebake the electrodes at 200°C for 1 hour prior to use

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	1.21
Manganese (Mn)	0.25
Silicon (Si)	1.75
Phosphorus (P)	0.019
Sulphur (S)	0.012
Nickel (Ni)	50.04

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
2.6	300	60 ~ 80
3.2	350	80 ~ 120
4.0	350	120 ~ 150
5.0	350	130 ~ 180

SN-99

AWS A5.15 ENi-CI
JIS Z3252 DFCNi
EN --

COVERED ELECTRODES FOR CAST IRON

DESCRIPTION :

SN-99 is a graphite electrode made of pure nickel alloy wire, which excels in low stress welding applications on light and medium weight castings and where maximum machinability is desired.

APPLICATIONS :

Typical applications include welding of castings found in many repair and refurbishment shops of mining equipment, engine blocks, marine equipment and other heavy manufacturing equipment.

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 200°C for 1 hour prior to use

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	1.12
Manganese (Mn)	0.15
Silicon (Si)	1.80
Phosphorus (P)	0.021
Sulphur (S)	0.011
Nickel (Ni)	91.00

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
2.6	300	60 ~ 80
3.2	350	70 ~ 120
4.0	350	100 ~ 150
5.0	350	130 ~ 170

SNF-1

AWS A5.11 ENiCrFe-1
JIS Z3224 ENi6062
EN ISO 14172 E Ni6062

COVERED ELECTRODES FOR NICKEL ALLOY STEEL

DESCRIPTION :

SNF-1 is a nickel-based electrode graphite electrode for all position welding. Its weld metal can provide excellent heat resistance, corrosion resistance and mechanical properties.

APPLICATIONS :

It is suitable for the welding of Inconel and dissimilar metals such as Inconel to low alloy steel, or stainless steel to low alloy steel

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 350 ~ 400°C for 60 minutes prior to use

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.06
Manganese (Mn)	2.93
Silicon (Si)	0.28
Phosphorus (P)	0.016
Sulphur (S)	0.012
Nickel (Ni)	72.34
Chromium (Cr)	15.20
Ferrum (Fe)	9.82
Niobium (Nb)	2.13

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	622
EL%	41

TYPICAL IMPACT VALUES :

IV -196°C J	86

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	55 ~ 80
3.2	350	70 ~ 120	65 ~ 110
4.0	350	100 ~ 150	80 ~ 130
5.0	350	120 ~ 180	-

SNF-2

AWS A5.11 ENiCrFe-2
JIS Z3224 ENi6133
EN ISO 14172 E Ni6133

COVERED ELECTRODES FOR NICKEL ALLOY STEEL

DESCRIPTION :

SNF-2 is a nickel-based electrode graphite electrode for all position welding. Its weld metal can provide excellent mechanical properties to meet the requirements of API and ASME for LNG tanks.

APPLICATIONS :

It is suitable for welding INCONEL 600 and similar alloy, cryogenic steels (e.g. 5Ni and 9Ni steels), martensitic to austenitic steels, dissimilar steels, heat resistant steel casting with limited weldability and so on.

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 350 ~ 400°C for 60 minutes prior to use
3. Backstep is the welding method to prevent blowholes during the arc starting
4. Keep the interpass at 150°C

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.07
Manganese (Mn)	1.84
Silicon (Si)	0.43
Phosphorus (P)	0.018
Sulphur (S)	0.010
Nickel (Ni)	73.26
Chromium (Cr)	13.70
Molybdenum (Mo)	2.31
Ferrum (Fe)	2.78
Niobium (Nb)	1.57

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	603
EL%	42.0

TYPICAL IMPACT VALUES :

IV -196°C J	75

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	55 ~ 80
3.2	350	70 ~ 120	65 ~ 110
4.0	350	100 ~ 150	80 ~ 130
5.0	350	120 ~ 180	-

SNF-3

AWS A5.11 ENiCrFe-3
JIS Z3224 ENi6182
EN ISO 14172 E Ni6182

COVERED ELECTRODES FOR NICKEL ALLOY STEEL

DESCRIPTION :

SNF-3 is a nickel-based electrode for all position welding. The weld metal can has good corrosion resistance, heat resistance and oxidizations resistance.

APPLICATIONS :

It is suitable for welding Inconel 600 and similar Inconel alloys, cryogenic steels, martensitic to austenitic steels, dissimilar steels, heat-resistant steels and castings with limited weldability.

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 350 ~ 400°C for 60 minutes prior to use
3. Backstep is the welding method to prevent blowholes during the arc starting

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.038
Manganese (Mn)	7.32
Silicon (Si)	0.27
Phosphorus (P)	0.016
Sulphur (S)	0.012
Nickel (Ni)	70.14
Chromium (Cr)	14.80
Ferrum (Fe)	3.61
Niobium (Nb)	1.43

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	635
EL%	40

TYPICAL IMPACT VALUES :

IV -196°C J	92

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	55 ~ 80
3.2	350	70 ~ 120	65 ~ 110
4.0	350	100 ~ 150	80 ~ 130
5.0	350	120 ~ 180	-

SNM-3

AWS A5.11 ENiCrMo-3
JIS Z3224 ENi6625
EN ISO 14172 E Ni6625

COVERED ELECTRODES FOR NICKEL ALLOY STEEL

DESCRIPTION :

SNM-3 is a NiCrMoNb-based electrode for all position welding. Its weld metal with the composition of Mo and Nb can has good corrosion resistance, heat resistance and mechanical properties.

APPLICATIONS :

It is suitable for welding nickel alloys of the same or similar type, like Inconel 625, and for welding 5Ni and 9Ni Steel.

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 350 ~ 400°C for 60 minutes prior to use
3. Backstep is the welding method to prevent blowholes during the arc starting

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.038
Manganese (Mn)	0.36
Silicon (Si)	0.26
Phosphorus (P)	0.018
Sulphur (S)	0.015
Nickel (Ni)	61.24
Chromium (Cr)	21.70
Molybdenum (Mo)	9.38
Ferrum (Fe)	2.51
Niobium (Nb)	3.38

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	783
EL%	39

TYPICAL IMPACT VALUES :

IV -196°C J	65

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	55 ~ 80
3.2	350	70 ~ 120	65 ~ 110
4.0	350	100 ~ 150	80 ~ 130
5.0	350	120 ~ 180	-

SNM-4

AWS A5.11 ENiCrMo-4
JIS Z3224 ENi6276
EN ISO 14172 E Ni6276

COVERED ELECTRODES FOR NICKEL ALLOY STEEL

DESCRIPTION :

SNM-4 is a nickel-based electrode with less C and Si for reducing carbide precipitation in grain boundary. The weld metal can has good corrosion resistance, heat resistance and mechanical properties.

APPLICATIONS :

It is suitable for welding Hastelloy C-276 and dissimilar metal.

NOTE ON USAGE :

1. Follow the recommended welding parameters and maintain short arc length
2. Rebake the electrodes at 350 ~ 400°C for 60 minutes prior to use
3. Backstep is the welding method to prevent blowholes during the arc starting

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.018
Manganese (Mn)	0.67
Silicon (Si)	0.13
Phosphorus (P)	0.016
Sulphur (S)	0.010
Nickel (Ni)	56.94
Chromium (Cr)	15.83
Molybdenum (Mo)	15.76
Ferrum (Fe)	6.28
Wolfram (W)	3.77

TYPICAL MECHANICAL PROPERTIES OF WELD METAL:

TS N/mm2	726
EL%	38

APPROVALS :

-

SIZES AND RECOMMENDED CURRENT RANGE (DC <+>)

Diameter mm	Length mm	Amp	
		F	V & OH
2.6	300	60 ~ 90	55 ~ 80
3.2	350	70 ~ 120	65 ~ 110
4.0	350	100 ~ 150	80 ~ 130
5.0	350	120 ~ 180	-

SH-26R

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-26R is a rutile electrode whose weld metal is a pearlitic structure easy for machining. It can be well done in all positions with good machining properties.

APPLICATIONS :

It is suitable for the repair welding of crane wheels, bulldozer blades, crusher jaws, shovel tooth and dipper tips.

NOTE ON USAGE :

1. Rebake the electrodes at 120°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C when employing multiple-layer bend welding for low-alloy steel and high-carbon steel.
3. Clean up the contaminations on the steel

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.21
Manganese (Mn)	0.48
Silicon (Si)	0.53
Chromium (Cr)	1.42

TYPICAL HARDNESS OF WELD METAL:

As Weld	HV	HRC	HS
Interpass temp. 150°C	260	25	37
Continue Build Up	230	18	33

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	70 ~ 120
4.0	400	110 ~ 170
5.0	400	160 ~ 220

SH-35R

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-35R is a rutile electrode with good performance of machining properties and resistant abrasion accompanied with impact.

APPLICATIONS :

It is used for repairs of welding crane wheels, buckets, bulldozer blades and shovel tooth.

NOTE ON USAGE :

1. Rebake the electrodes at 120°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.27
Manganese (Mn)	1.25
Silicon (Si)	0.32
Chromium (Cr)	1.9

TYPICAL HARDNESS OF WELD METAL:

As Welded	HV	HRC	HS
Interpass temp. 150℃	355	36	48
Build Up	280	27	40

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	70 ~ 120
4.0	400	110 ~ 170
5.0	400	160 ~ 220

SH-45

AWS --
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COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-45 is low hydrogen electrode whose weld metal is sorbite structure (Ferrite + cementite), providing good performance of machining properties and resistant abrasion accompanied with impact.

APPLICATIONS :

It is used for repairs of welding crane wheels, buckets, bulldozer blades and shovel tooth.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~ 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C.
3. Clean up the contaminations on the steel.
4. Adopt back-step method and stay for 3-5 seconds before every end-up to prevent arc starting from blowholes

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.16
Manganese (Mn)	1.91
Silicon (Si)	0.38
Chromium (Cr)	2.16

TYPICAL HARDNESS OF WELD METAL:

As Welded	HV	HRC	HS
Interpass temp. 150°C	450	45	61
Build Up	380	39	52
Water Quenching at 900°C	470	47	63

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	70 ~ 120
4.0	400	110 ~ 170
5.0	400	160 ~ 220

SH-45R

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-45R is a rutile electrode with good performance of machining properties and resistant abrasion accompanied with impact.

APPLICATIONS :

It is used for repairs of welding crane wheels, buckets, bulldozer blades and shovel tooth.

NOTE ON USAGE :

1. Rebake the electrodes at 120°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.24
Manganese (Mn)	1.28
Silicon (Si)	0.36
Chromium (Cr)	2.43

TYPICAL HARDNESS OF WELD METAL:

As Welded	HV	HRC	HS
Interpass temp. 150°C	450	45	61
Build Up	380	39	52
Water Quenching at 900°C	470	47	63

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-50

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-50 is a low hydrogen electrode whose weld metal is martensite structure to obtain good corrosion resistance and abrasion resistance.

APPLICATIONS :

It is used for welding agitator propellers and drive sprockets.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 200°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.21
Manganese (Mn)	0.24
Silicon (Si)	0.48
Nickel (Ni)	0.18
Chromium (Cr)	11.36

TYPICAL HARDNESS OF WELD METAL:

As Weld		HV	HRC	HS
Interpass temp. 150°C		510	50	67
Continue Build Up		500	49	66
Work Hardening		595	55	74
High Temp	Temp(°C)	200°C 300°C	400°C 500°C	--
	HV	460 400	290 160	--

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	350	120 ~ 170
5.0	350	160 ~ 210

SH-50N4

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-50N4 can provide better corrosion resistance, heat resistance and crack resistance than SH-50 at the high temperature because of its weld metal of martensite structure with the composition of Ni and Mo.

APPLICATIONS :

It is used for welding dies, blades and agitator propellers.

NOTE ON USAGE :

1. Rebake the electrodes at 150 ~ 200°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :	
Carbon (C)	0.14
Manganese (Mn)	0.24
Silicon (Si)	0.58
Nickel (Ni)	3.71
Chromium (Cr)	11.58
Molybdenum (Mo)	0.69

TYPICAL HARDNESS OF WELD METAL:

As Weld	HV	HRC	HS
Interpass temp. 150°C	488	47	65

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	350	120 ~ 170
5.0	350	160 ~ 210

SH-60

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

The weld metal of SH-60 is self-hardened martensite structure with characteristics of high hardness and great abrasion resistance. There is no need for PWHT.

APPLICATIONS :

It is used for the welding of pump impeller, soil abrasion, agitator propeller and bulldozer blades.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes before use.
2. Proper preheat and interpass temperature at 150°C to avoid cracking.
3. Low hydrogen electrode shall be used for buffer layer for multi-layer build-up welding.
4. Backstep is a welding method to prevent blowhole while the arc starts.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.31
Manganese (Mn)	1.55
Silicon (Si)	0.32
Chromium (Cr)	4.11

TYPICAL HARDNESS OF WELD METAL:

As Welded	HV	HRC	HS
Interpass temp. 150°C	450	45	61
Build Up	380	39	52
Water Quenching at 900°C	355	36	49

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-80

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-80 is an electrode whose weld metal deposits martensite structure with characteristics of high hardness and great slag removal.

APPLICATIONS :

It is used for the welding of pump impeller and agitator propeller.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes before use.
2. Proper preheat and interpass temperature above 200°C to avoid cracking.
3. Low hydrogen electrode shall be used for buffer layer for multi-layer build-up welding.
4. Backstep is a welding method to prevent blowhole while the arc starts.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.59
Manganese (Mn)	1.12
Silicon (Si)	0.61
Chromium (Cr)	7.07
Molybdenum (Mo)	0.54

TYPICAL HARDNESS OF WELD METAL:

As Weld		HV	HRC	HS
Interpass temp. 150°C		660	58	79
Continue Build Up		620	56	75
High Temp	Temp(°C)	200°C 300°C	400°C 500°C	600°C 700°C
	HV	520 480	430 420	210 95

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-80W

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-80W is a martensitic structure electrode whose weld metal contains Cr, W, Mo and V to provide sustainable hardness at high temperature.

APPLICATIONS :

It is used for welding mixer blades and tamping dies.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~ 60 minutes before use.
2. Proper preheat and interpass temperature above 200°C to avoid cracking.
3. Low hydrogen electrode shall be used for buffer layer for multi-layer build-up welding.
4. Backstep is a welding method to prevent blowhole while the arc starts.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.67
Manganese (Mn)	1.18
Silicon (Si)	1.26
Chromium (Cr)	7.10
Molybdenum (Mo)	1.42
Wolfram (W)	2.04

TYPICAL HARDNESS OF WELD METAL:

As Weld		HV	HRC	HS
Interpass temp. 150°C		680	59	80
Continue Build Up		660	58	79
High Temp	Temp(°C)	200°C 300°C	400°C 500°C	600°C 700°C
	HV	530 490	440 430	210 100

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-90

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-90 can provide a high hardness and good abrasion resistance because of its self-hardening martensitic structure containing Cr and B as carbide-forming elements.

APPLICATIONS :

It is used for welding bucket, sand pump and earthwork.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 60 minutes before use.
2. Proper preheat and interpass temperature above 300°C.
3. Low hydrogen electrode shall be used for buffer layer for multi-layer build-up welding.
4. Backstep is a welding method to prevent blowhole while the arc starts.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.63
Manganese (Mn)	1.07
Silicon (Si)	0.64
Chromium (Cr)	7.32
Molybdenum (Mo)	0.93

TYPICAL HARDNESS OF WELD METAL:

As Weld	HV	HRC	HS
Interpass temp. 150°C	680	59	80
Continue Build Up	660	58	79

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-95HC

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-95HC is an austenitic structure electrodes whose weld metal contains 30% Cr to provide a high hardness, good corrosion resistance and resistance to earth abrasion at high temperature.

APPLICATIONS :

It is used for welding screening machine, agitator and cutter blade.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~ 60 minutes before use.
2. Proper preheat above 400°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	5.13
Manganese (Mn)	3.61
Silicon (Si)	0.32
Chromium (Cr)	30.42

TYPICAL HARDNESS OF WELD METAL:

As Weld		HV		HRC		HS	
Interpass temp. 150°C		700		60		81	
Continue Build Up		680		59		80	
High Temp	Temp(°C)	200°C	300°C	400°C	500°C	600°C	700°C
	HV	610	440	400	310	210	95

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	90 ~ 140
4.0	400	140 ~ 180
5.0	400	190 ~ 220

SH-95HN

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-95HN is an electrode whose weld metal contains a high C and high Cr structure. The hardness and resistance to earth abrasion at high temperature can be obtained.

APPLICATIONS :

It is used for welding pulverizers blades, pump impellers and agitator propellers.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~ 60 minutes before use.
2. Proper preheat above 250°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	5.37
Manganese (Mn)	1.28
Silicon (Si)	1.56
Chromium (Cr)	25.4
Molybdenum (Mo)	5.52
Niobium (Nb)	6.78
Wolfram (W)	1.81
Vanadium (V)	1.52

TYPICAL HARDNESS OF WELD METAL:

As Weld		HV	HRC	HS
Interpass temp. 150°C		750	62	86
Continue Build Up		700	60	81
High Temp	Temp(°C)	300°C 400°C	500°C 600°C	--
	HV	730 650	580 460	--

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	70 ~ 120
4.0	400	110 ~ 170
5.0	400	160 ~ 220

SH-WM

AWS --
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-WM deposits the weld metal of wolfram carbide and Mo alloy for improving its toughness. It can has high hardness and abrasion resistance.

APPLICATIONS :

It is used for welding cutters and pump impellers.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~ 60 minutes before use.
2. Proper preheat above 300°C.

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	3.53
Manganese (Mn)	1.30
Silicon (Si)	0.47
Molybdenum (Mo)	6.65
Wolfram (W)	45.50

TYPICAL HARDNESS OF WELD METAL:

As Weld	HV	HRC	HS
Interpass temp. 150°C	750	62	85

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210

SH-MN

AWS A5.13 EFeMn-A
JIS --
EN --

COVERED ELECTRODES FOR HARDFACING STEEL

DESCRIPTION :

SH-MN deposits an austenitic-manganese steel alloy which work-hardens under impact and compressive stresses. The excellent machining properties, toughness and work hardening are obtained.

APPLICATIONS :

It is used for surfacing and building up manganese steel components such as crusher jaws and hammers.

NOTE ON USAGE :

1. Rebake the electrodes at 300 ~ 350°C for 30 ~60 minutes before use.
2. Water cooling shall be done during welding
3. Remove the hardened zone before the welding if the base metal of 13% Mn Steel is hardened

WELDING POSITION:

TYPICAL CHEMICAL COMPOSITION OF WELD METAL (wt%) :

Weld Metal Analysis :

Carbon (C)	0.67
Manganese (Mn)	13.48
Silicon (Si)	0.56
Nickel (Ni)	3.68

TYPICAL HARDNESS OF WELD METAL:

As Weld	HV	HRC	HS
Interpass temp. 150°C	460	46	62

SIZES AND RECOMMENDED CURRENT RANGE (AC or DC <+>)

Diameter mm	Length mm	Amp F
3.2	350	80 ~ 120
4.0	400	120 ~ 170
5.0	400	160 ~ 210