

SR-134

SHIELDED METAL ARC WELDING CONSUMABLES
FOR WELDING OF 9% Ni STEELS

HYUNDAI WELDING CO., LTD.



❖ Specification

AWS A5.11

ENiCrFe-4

❖ Applications

Welding of 9%Ni steel for cryogenic storage tanks for LNG, Liquified nitrogen, etc.

❖ Characteristics on Usage

SR-134 is an Ni-alloy electrode. Weld metal shows excellent strength and toughness at cryogenic temperatures and meets the specifications of API and NV for the welding of 9%Ni steel. With AC, it permits easy operation free from arc blow.

❖ Note on Usage

AC

❖ Packing

Size mm(in)		3.2(1/8)	4.0(5/32)	5.0(3/16)
Length mm(in)		350(14)	350(14)	350(14)
Amp.	F	80~120	100~150	140~190
	V-up & OH	65~110	90~140	

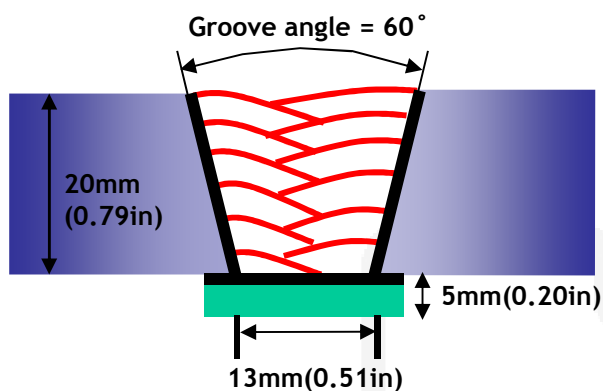
❖ Approval



Mechanical Properties & Chemical Composition of All Weld Metal (AWS Rules)

❖ Welding Conditions

Method by AWS Rules



Diameter(mm)	: 4.0 mm(5/32)
Polarity	: AC
Amp./ Volt.	: 150 / 24
Pre-Heat(℃)	: R.T .
Interpass Temp.℃(°F)	: 150±15(302±59)

[Joint Preparation & Layer Details]

❖ Mechanical Properties of the weld metal

Consumables	Tensile Test Results		CVN Impact Test Joule(ft·lbs)
SR-134	TS MPa(ksi)	El(%)	-196℃(-320°F)
	700(101)	38.0	60(44)
AWS A5.11 ENiCrFe-4	≥650(94)	≥ 20	Not Specified

❖ Chemical Analysis of the weld metal(wt%)

Consumables	Chemical Composition (%)									
	C	Si	Mn	P	S	Ni	Cr	Mo	Nb	Fe
SR-134	0.10	0.5	3.0	0.005	0.005	65.7	15..5	2.4	2.0	10.3
AWS A5.11 ENiCrFe-4	≤0.20	≤1.0	1.0~ 3.5	≤0.03	≤0.02	≥60.0	13.0~ 17.0	1.0~ 3.5	1.0~ 3.5	≤12.0

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



CTOD Test (9%Ni Steel)

❖ Test plate

Item	CTOD Test
Base Metal Groove	ASTM A553 Type 1` 17.5t x 400W x 600L X-Groove (Top : 60°, Bottom : 90°)

❖ Welding Condition

Item	Position	Polarity	Current	Voltage	Preheat Temp. °C(°F)	Interpas Temp. °C(°F)
CTOD Test	V-up	AC	140	—	23(73.4)	40(104) – 135(275)

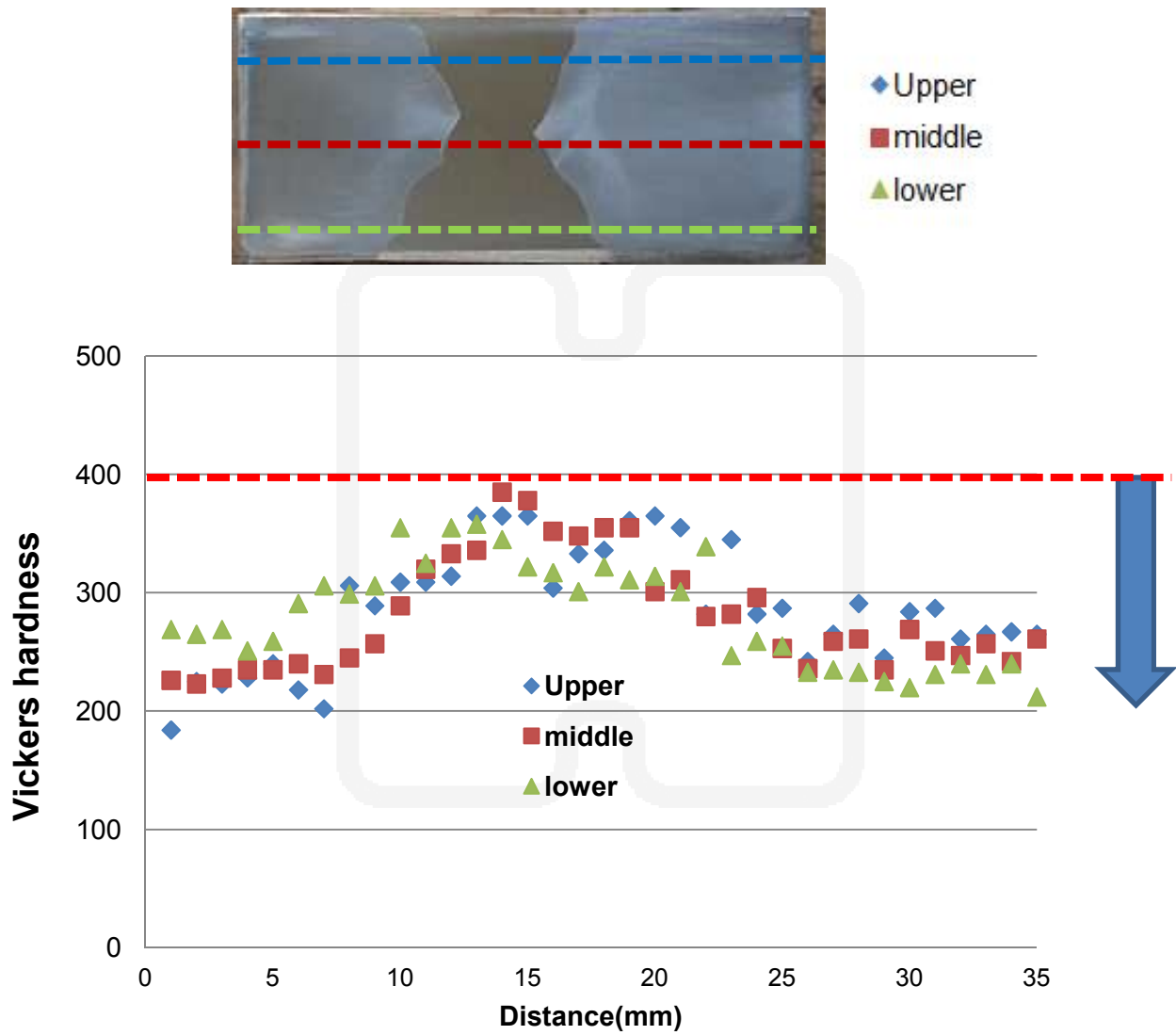
❖ Test Result

Item	PWHT	Test Temp °C(°F)	CTOD Vale mm(in)
Result	AW	–170(–274)	0.30(0.012)
Spec.	AW	–170(–274)	Min 0.17(0.007)
Specimen Type : BS7448 : Part 1 & Part 2 Location of machined notch : at the center of deposited metal AW = As Welded			



Hardness Test (9%Ni Steel)

❖ Vickers Hardness Test (Hv10)



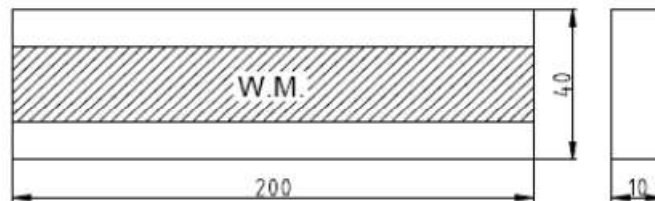
Base Metal 9%Ni Steel (17.4T)

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Bending test (9%Ni Steel)

❖ Bending Test (Bending Radius: 180°)



(a) Face



(b) Root

Base Metal
9%Ni Steel (15T)



(a) Face



(b) Root

Base Metal
9%Ni Steel (33T)

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Bead Appearance

❖ Bead Appearance

