

SMT-686

2021.06



❖ Specification

AWS A5.14/ ASME SFA-5.14 ERNiCrMo-14

❖ Applications

Mainly used for welding Duplex, Super-Duplex and Super-austenitic stainless steels, as well as Nickel alloys(UNS N06059, N06022, INCONEL C-276, 22, 625, 686)

❖ Characteristics on Usage

1. SMT-686 is capable of being used to deposit overlays of outstanding corrosion-resistance onto a range of steels.
2. Also, suitable for use at requiring general corrosion-resistance in HCl or sulfuric acid.

❖ Shielding gas

100% Ar or Ar+30%He

❖ Polarity

GMAW: DC+ , GTAW: DC-

❖ Packing

Dia.	1.2mm (0.045in)	1.6mm (1/16in)
Spool	12.5kg (28lbs)	

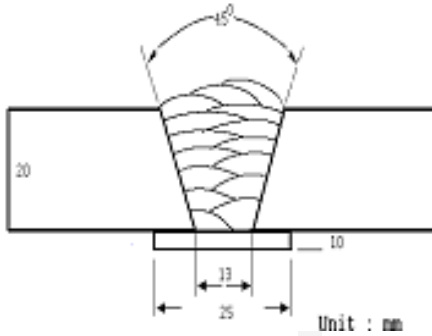
Dia.	2.4mm (3/32in)	3.2mm (1/8in)
Weight	5kg (11lbs)	



Mechanical Properties & Chemical Composition of All Weld Metal(GMAW)

❖ Welding Conditions

Method by AWS Rules



Diameter(mm)	: 1.2mm
Shielding Gas	: Ar+30%He
Flow Rate(ℓ /min.)	: 20~22
Amp./ Volt.	: 240 / 28
Stick-Out(mm)	: 20
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 150±15
Polarity	: DC(+)

[Joint Preparation & Layer Details]

❖ Chemical composition of the wire (wt%)

Consumables	C	Si	Mn	P	S	Ni	Cr
SMT-686	0.008	0.07	0.31	0.001	0.001	58.2	22.13
AWS A5.14 ERNiCrMo-14	≤0.01	≤0.08	≤1.0	≤0.02	≤0.02	Rem.	19.0 ~23.0

Consumables	Mo	Fe	W	Cu	Al	Ti
SMT-686	15.17	0.28	3.17	0.006	0.24	0.09
AWS A5.14 ERNiCrMo-14	15.0 ~17.0	≤5.0	3.0 ~4.4	≤0.5	≤0.5	≤0.25

❖ Chemical Analysis of the weld metal(wt%)

Consumables	C	Si	Mn	P	S	Ni	Cr
SMT-686	0.038	0.12	0.34	0.006	0.001	57.0	21.0

Consumables	Mo	Fe	W
SMT-686	14.8	2.53	2.84

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.



Mechanical Properties of All Weld Metal(GMAW)



❖ Mechanical Properties of the weld metal

Consumables	Tensile Test		CVN Impact test Joule (ft·lbs)			
	TS MPa (ksi)	El (%)	Temp.	x1	x2	x3
SMT-686	816 (118)	40.2	-60℃ (-76°F)	101 (74)	104 (77)	121 (89)
			-196℃ (-320.8°F)	85 (63)	85 (63)	102 (75)
AWS A5.14 ERNiCrMo-14	760 (Typical)	-	Not Specified			



Bead Appearance (GMAW)

❖ Bead Appearance (H-Fillet Welding Position)

Shielding gas	Bead Appearance (240A/28V)
100% Ar	
Ar+30%He	

Notice

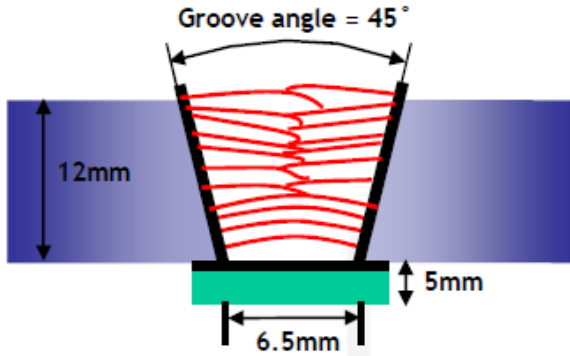
***This test report is made for giving general information, and it's not meaning guarantee.
Test results are changeable by several welding - parameter including base materials***



Mechanical Properties & Chemical Composition of All Weld Metal(GTAW)

❖ Welding Conditions

Method by AWS Rules



Diameter(mm)	: 3.2mm
Shielding Gas	: 100%Ar
Flow Rate(ℓ /min.)	: 20~25
Amp./ Volt.	: 160~240
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 150±15
Polarity	: DC(-)

[Joint Preparation & Layer Details]

❖ Chemical composition of the wire (wt%)

Consumables	C	Si	Mn	P	S	Ni	Cr
SMT-686	0.008	0.07	0.31	0.001	0.001	58.2	22.13
AWS A5.14 ERNiCrMo-14	≤0.01	≤0.08	≤1.0	≤0.02	≤0.02	Rem.	19.0 ~23.0

Consumables	Mo	Fe	W	Cu	Al	Ti
SMT-686	15.17	0.28	3.17	0.006	0.24	0.09
AWS A5.14 ERNiCrMo-14	15.0 ~17.0	≤5.0	3.0 ~4.4	≤0.5	≤0.5	≤0.25

❖ Chemical Analysis of the weld metal(wt%)

Consumables	C	Si	Mn	P	S	Ni	Cr
SMT-686	0.014	0.15	0.25	0.001	0.001	55.2	20.6

Consumables	Mo	Fe	W
SMT-686	14.7	5.62	2.94

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Mechanical Properties of All Weld Metal(GTAW)

❖ Mechanical Properties of the weld metal

Consumables	Tensile Test		CVN Impact test Joule (ft·lbs)			
	TS MPa (ksi)	El (%)	Temp.	x1	x2	x3
SMT-686	782 (113)	43.2	-60℃ (-76°F)	68 (50)	66 (49)	73 (54)
			-196℃ (-320.8°F)	50 (37)	52 (38)	51 (38)
AWS A5.14 ERNiCrMo-14	760 (Typical)	-	Not Specified			

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