HYUNDAI WELDING

Rev. 01

SMT-686

2021.06

HYUNDAI WELDING CO., LTD.

❖ Specification

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

❖ Applications

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

❖ Characteristics on Usage

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

❖ Shielding gas

100% Ar or Ar+30%He

❖ Polarity

GMAW: DC+ , GTAW: DC-

❖ Packing

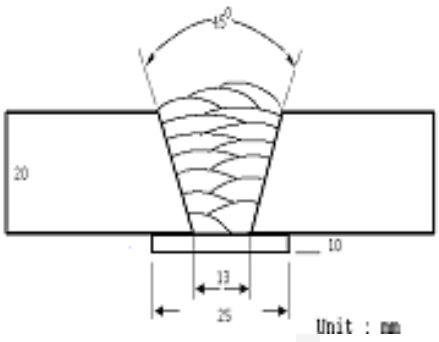
Dia.	1.2mm (0.045in)	1.6mm (1/16in)
Spool	12.5kg (28lbs)	

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



[Joint Preparation & Layer Details]

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(℃)	:	R.T .
Interpass Temp.(℃)	:	150±15
Polarity	:	DC(+)

❖ 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

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	

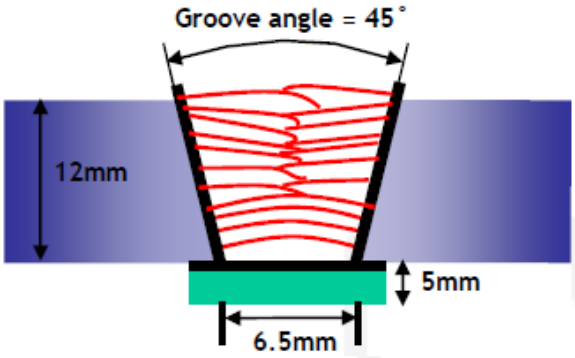
Notice

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



[Joint Preparation & Layer Details]

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

❖ 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

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			