

# **S-777MX X H-14** **X A-G**

SUBMERGED ARC WELDING CONSUMABLES  
FOR WELDING OF Mild & 490MPa(H-14), 570MPa(A-G) CLASS  
HIGH TENSILE STEEL

2025.04

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**HYUNDAI WELDING CO., LTD.**



## ❖ Specification

Flux		JIS Z 3352	EN ISO 14174	KS B ISO 14174	
S-777MX		S A AR 1	S A AR 1	S A AR 1	
Wire	JIS Z 3351	JIS Z 3183	AWS A5.17/A5.23	EN ISO 14171-A	
	H-14	YS-S6	S502-H	A5.17 F7A0-EH14 A5.17 F7PZ-EH14	S4
	A-G	YS-S6	S582-H	A5.23 F8A0-EG-G	S4

## ❖ Applications

Single and multi-layer welding of miniature LPG tanks, spiral pipes, ships, agricultural implements, machinery, bridges and structural steels.

## ❖ Characteristics on Usage

Especially insensitive to oil, rust, scale, dirt and primers on the surface to be welded. Slag detachability in narrow groove and resistance to porosity are excellent. Suitable for welding of thin and medium plate in high speed welding. As the consumption of flux is low, it is very economical. Applicable to horizontal and flat fillet welding

## ❖ Note on Usage

1. Dry the flux at 300~350 °C (572~662 °F) for 60 minutes before use.
2. When the flux height is excessive, poor bead appearance may occur.
3. Remove rust, scales, oil, paint, water, dirt and slag of tack welds from the groove to obtain sound weld metal.
4. Use welding current and speed as low as possible at the first layer of groove to avoid cracking.



## Welding Consumables for Test

### ❖ Flux

Consumable	Chemical Composition, wt%		
	Al <sub>2</sub> O <sub>3</sub> +TiO <sub>2</sub>	SiO <sub>2</sub> +MnO	CaO+MgO
S-777MX	55	25	20

Consumable	Particle Size (Mesh)	Type of Flux	B.I	H <sub>2</sub> O(1000℃)/CO <sub>2</sub> (%)
S-777MX	10 x 48	Agglomerated	0.5	0.01/0.05

### ❖ Electrode

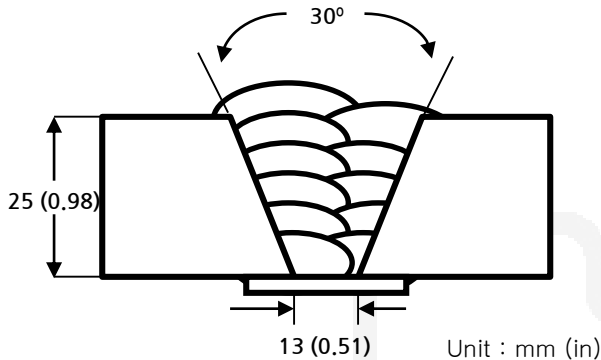
Consumable	Dia. mm (in)	Chemical Composition of Electrode (Wire)				
		C	Si	Mn	P	S
H-14	4.0(5/32)	0.12	0.03	1.93	0.016	0.009
AWS A5.17 EH14		0.10-0.20	≤0.10	1.70-2.20	≤0.030	≤0.030
A-G	4.0(5/32)	0.12	0.05	2.01	0.017	0.005
AWS A5.23 EG		Not specified				



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

Base metal	: AH36
Particle size	: 10 x 48
Flux type	: Agglomerated
Amp./ Volt./CPM	: 550 / 30 / 40
Stick-Out mm (in)	: 30 (1.18)
Pre-Heat °C (°F)	: R.T .
Interpass Temp. °C (°F)	: <150 (302)
Polarity	: AC

### ❖ Mechanical Properties of All weld metal

Consumables	PWHT Condition	Tensile Test			CVN Impact Test Joules (ft·lbf)	
		YS MPa(ksi)	TS MPa(ksi)	EL (%)	0°C (32°F)	-20°C (0°F)
<b>S-777MX X H-14</b>	<b>As welded</b>	560 (81,000)	620 (89,000)	27	105(77)	45(35)
<b>AWS A5.17 F7A0-EH14</b>	-	≥ 400 (58,000)	490~660 (70,000~95,000)	≥ 22	≥ 27J at -20°C (0°F)	

### ❖ Chemical Composition of All weld metal(wt%)

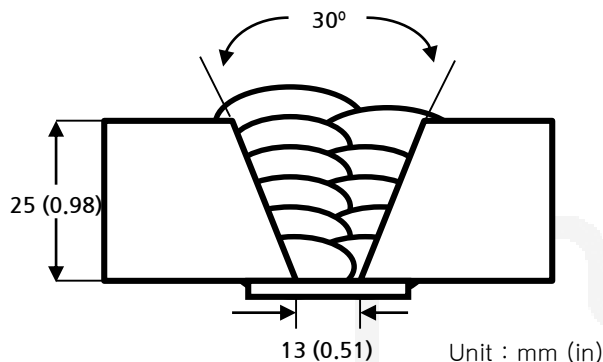
Consumables	C	Si	Mn	P	S
<b>S-777MX X H-14</b>	0.08	0.50	0.90	0.020	0.010



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

Base metal	: AH36
Particle size	: 10 x 48
Flux type	: Agglomerated
Amp./ Volt./CPM	: 550 / 30 / 40
Stick-Out mm (in)	: 30 (1.18)
Pre-Heat °C (°F)	: R.T .
Interpass Temp. °C (°F)	: <150 (302)
Polarity	: AC

### ❖ Mechanical Properties of All weld metal

Consumables	PWHT Condition	Tensile Test			CVN Impact Test Joules (ft-lbf)
		YS MPa(psi)	TS MPa(psi)	EL (%)	0°C (32°F)
S-777MX X H-14	620°C x 1hr	515 (74,000)	620 (90,000)	30	110(81)
AWS A5.17 F7PZ-EH14	-	≥ 400 (58,000)	490~660 (70,000~95,000)	≥ 22	-

### ❖ Chemical Composition of All weld metal(wt%)

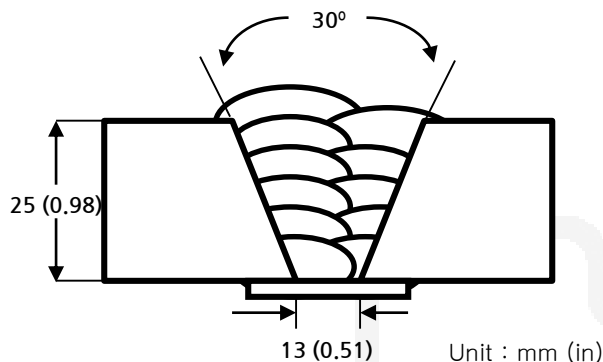
Consumables	C	Si	Mn	P	S
S-777MX X H-14	0.08	0.50	0.90	0.020	0.015



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

Base metal	: AH36
Particle size	: 10 x 48
Flux type	: Agglomerated
Amp./ Volt./CPM	: 550 / 30 / 40
Stick-Out mm (in)	: 30 (1.18)
Pre-Heat °C (°F)	: R.T .
Interpass Temp. °C (°F)	: <150 (302)
Polarity	: AC

### ❖ Mechanical Properties of All weld metal

Consumables	PWHT Condition	Tensile Test			CVN Impact Test Joules (ft-lbf)
		YS MPa(ksi)	TS MPa(ksi)	EL (%)	-20℃ (0°F)
S-777MX X A-G	As welded	510 (74,000)	610 (88,000)	30	85 (64)
AWS A5.23 F8A0-EG-G	-	≥470 (68,000)	550~700 (80,000~100,000)	≥ 20	≥27J at -20℃ (0°F)

### ❖ Chemical Composition of All weld metal(wt%)

Consumables	C	Si	Mn	P	S
S-777MX X A-G	0.06	0.60	1.00	0.015	0.005



## Approvals

### ❖ Authorized Approval Details

Consumables	KR	ABS	LR	BV	DNV	NK
<b>S-777MX X H-14</b>	2M 2YM  1.6~6.4	2M 2YM  1.6~6.4	2M 2YM  1.6~6.4	A2M A2YM  1.6~6.4	II YM  1.6~6.4	KAW2M KAW52M  1.6~6.4
<b>S-777MX X H-14 (2 Pole)</b>		2M 2YM  1.6~6.4	2M 2YM  1.6~6.4	A2M A2YM  1.6~6.4	II YM  1.6~6.4	KAW2M KAW52M  1.6~6.4