

SMAW Electrodes for Weathering Steel

Welding Notes for Weathering Steel

Low Alloy Weathering Steel of Welding consumables selection

ASTM/JIS G3114 standard		SMAW Electrodes	Flux Cored Wire
ASTM	JIS		
A709 Gr. 36 A709 Gr. 50W A588 A242	SMA 400P SMA 400W SMA 490P SMA 400W	GL78W1	GMX 811-W2
A588 A709 Gr. 50W	SMA 570P SMA 570W	GL88W2	

Precautions for welding weathering steels are similar to high tensile strength steel with the exceptions of the following points :

1. Preheat, Inter-Pass, and PWHT temperature

For low alloy weathering steel's welding pre-heat and post heat temperature, please see chart below. The preheating process for smaller weldment can cover the entire body. In a large structure setting, preheat should begin at the welding point covering an area about 5 times the weldment thickness using heating equipment for local preheat. Whether stress relief heat treatment is necessary depends on the contract or the work specifications.

Low Alloy Weathering Steel Preheat, Inter-pass and PWHT Temperature Requirement

Product name	Inter-pass Temperature (°C)	PWHT Temperature × time (°C×1hr)
GL78W1	95~120	No need
GL88W2		

2. Recommending low electrical current (low heat input)

To prevent the burning loss of alloy elements due to serious oxidation, welding current should not exceed the product recommended limits.

Goodweld Corporation
No.99, Huangong Rd. Yongkang Tainan, Taiwan
Phone: 886-6-2331003 Fax: 886-6-2333213
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3. Short arc welding technique

Weathering Steel SMAW Electrodes are mostly classified as low hydrogen type; thus, short arc technique should be observed during welding in order to prevent permeation of N₂ and O₂ into the arc creating blow hole and alloy elements burning loss. If weaving is necessary, the weaving width should not exceed 3 times of the core wire diameter. During welding, the arc starting point should be 1~2 cm behind the welding start point. Once the arc starts, pull it back to the welding start point to begin welding to avoid the occurrence of blow hole. This is known as the forehand & backhand arc starting technique.

4. For more information, please consult page A6 regarding Welding notes of SMAW Electrode for Mild and High Tensile Strength Steel use.