

# TL-78A1

AWS A5.5 E7018-A1  
EN ISO 3580-B-E4918-1M 3  
JIS Z 3223 E4918-1M3

## Characteristics and Applications:

TL-78A1 is an iron powder low hydrogen type electrode for 490N/mm<sup>2</sup> high tensile steel. It provides high welding efficiency due to the pick-up of iron powder. The weld metal contains 0.5% Mo, therefore it is suitable for chemical plants, petroleum refinery plants, 0.5%Mo heat-resistant steel and other casting steels.

## Notes on usage:

1. Clean up the contaminations on the base metal and welding seam so as not to derogate the weld metal quality from particles.
2. Dry the electrodes at 350-400°C for 60 minutes before using.
3. Use back-step method to prevent arc starting from blowholes and hold for 3-5 seconds at every end-up.
4. Maintain short arc length. Moving range should be controlled within 3 times of the wire's dia when you are welding with weave method.
5. Do not exceed the range of recommended current.
6. Pre-heat the workpiece at 100~200°C and PWHT at 620~680°C.

## Typical chemical composition of weld metal (wt%):

	C	Mn	Si	P	S	Mo	V
AWS	≤0.12	≤0.9	≤0.80	≤0.03	≤0.03	0.40-0.65	-
EN ISO	≤0.10	0.40-1.50	≤0.80	≤0.030	≤0.025	0.40-0.70	≤0.03
Typical value	0.06	0.70	0.40	0.018	0.007	0.50	0.007

## Typical mechanical properties of weld metal:

	Yield strength MPa(ksi)	Tensile strength MPa(ksi)	Elongation %	PWHT
AWS	≥390(57)	≥490(70)	≥22	620°Cx1hr
EN ISO	≥355(51)	≥510(74)	≥22	620°Cx1hr
Typical value	510(74)	610(88)	28	620°Cx1hr

## Welding position:



## Sizes and recommended current range (AC or DC <+>):

Diameter (mm)		3.2	4.0	5.0
Length (mm)		350	450	450
Amps	F	90-130	140-180	190-240
	V&OH	80-120	130-160	-

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