

TLH-581

AWS A5.1 E7018-1 H4R
EN ISO 2560-A E 46 4 B 1 2 H5
JIS Z 3211 E4918-1 H5

Characteristics and Applications:

TLH-581 is an iron-powder low hydrogen type electrode for all-position welding of 490N/mm² grade high tensile steel. It is designed for single and multiple pass applications. The product has good welder appeal and produces a stable arc with low spatter generation. TLH-581 produces weld metals with excellent mechanical properties and impact toughness at low temperature (-45°C) and low diffusible hydrogen. Its features make the product suitable for low alloy steels, medium carbon steels, heavy steel plates, cast steels, aluminum killed steel of LPG and especially for welding of steels with poor weldability.

Notes on usage:

1. Be sure to clean up the contaminations on the base metal.
2. Unless the storage condition is secured and the packing is not damaged, we highly recommend to dry the electrodes at 350-400°C for 1-2 hours before using.
3. Take the back-step method to prevent blowholes at the arc starting.
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.

Typical chemical composition of weld metal (wt%):

| | C | Mn | Si | P | S | Ni | Cr | Mo | V | Nb | Cu |
|---------------|-------|-------|-------|--------|--------|-------|-------|-------|--------|-------|------|
| AWS | ≤0.15 | ≤1.60 | ≤0.75 | ≤0.035 | ≤0.035 | ≤0.30 | ≤0.20 | ≤0.30 | ≤0.08 | - | - |
| EN ISO | - | - | - | - | - | ≤0.3 | ≤0.2 | ≤0.2 | ≤0.005 | ≤0.05 | ≤0.3 |
| Typical value | 0.065 | 1.40 | 0.50 | 0.02 | 0.007 | 0.015 | 0.018 | 0.001 | 0.014 | 0.004 | 0.01 |

Typical mechanical properties of weld metal:

| | Yield strength MPa(ksi) | Tensile strength MPa(ksi) | Elongation % | Charpy V-Notch J (ft-lbf) | |
|---------------|----------------------------|------------------------------|-----------------|------------------------------|---------------|
| | | | | -40°C (-40°F) | -45°C (-50°F) |
| AWS | ≥400(58) | ≥490(70) | ≥22 | - | ≥27(20) |
| EN ISO | ≥460(67) | 530-680(77-99) | ≥20 | ≥47(35) | ≥27(20) |
| Typical value | 490(71) | 586(85) | 32 | 130(96) | 120(90) |

Welding position:



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

| Diameter (mm) | 2.6 | 3.2 | 4.0 | | 5.0 |
|---------------|------|--------|---------|---------|---------|
| Length (mm) | 350 | 350 | 350 | 450 | 450 |
| Amps | F | 95-110 | 120-140 | 160-200 | 200-240 |
| | V&OH | 80-100 | 110-130 | 130-160 | - |

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