

# ArcStar 81N1M

AWS A5.29 E81T1-Ni1MJ  
EN ISO 17632-A-T 46 3 1Ni P M21 1 H5

## Characteristics and Applications:

ArcStar 81N1M is a gas-shielded flux cored wire for all-position welding. It is designed for welding 590 N/mm<sup>2</sup> high tensile steel for low temperatures.

It provides good weldability with smooth bead appearance, less spatter and stable arc as well as good impact properties down to -50°C.

It is also suitable for welding on construction machinery, shipbuilding, offshore, structures, bridges, storage tanks and piping.

## Notes on usage:

1. Excessive heat input should reduce impact value. Therefore, perform welding with selecting proper heat input based on the required impact value.
2. Must pre-heat at 50~150°C varied on steels, plate thickness and restraint.
3. Use DC(+) polarity.
4. Use 75~80%Ar+25~20%CO<sub>2</sub> as shielding gas.

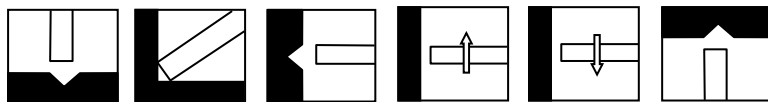
## Typical chemical composition of weld metal (wt%):

|               | C     | Mn    | Si    | P      | S      | Ni        |
|---------------|-------|-------|-------|--------|--------|-----------|
| AWS           | ≤0.12 | ≤1.50 | ≤0.80 | ≤0.030 | ≤0.030 | 0.80-1.10 |
| EN ISO        | -     | ≤1.4  | ≤0.80 | -      | -      | 0.6-1.2   |
| Typical value | 0.05  | 1.25  | 0.15  | 0.012  | 0.007  | 1.00      |

## Typical mechanical properties of weld metal:

|               | Yield strength<br>MPa(ksi) | Tensile strength<br>MPa(ksi) | Elongation<br>% | Charpy V-Notch<br>J(ft-lbf) |         | PWHT      |
|---------------|----------------------------|------------------------------|-----------------|-----------------------------|---------|-----------|
| AWS           | ≥470(68)                   | 550-690(80-100)              | ≥19             | -40°C (-40°F)               | ≥27(20) | -         |
| EN ISO        | ≥460(67)                   | 530-680(77-99)               | ≥20             | -30°C (-20°F)               | ≥47(35) | -         |
| Typical value | 611(89)                    | 656(95)                      | 26              | -40°C (-40°F)               | 108(80) | -         |
|               | 568(82)                    | 628(91)                      | 26              | -50°C (-60°F)               | 65(48)  | 600°C*1hr |

## Welding position:



## Sizes and recommended parameter range (DC<+>) :

Stick out:15-25(mm), flow rate:20-25(l/min):

| Position | Diameter (mm) | 1.2                 | 1.6                 |
|----------|---------------|---------------------|---------------------|
|          |               |                     |                     |
| F、HF     |               | 180A-300A / 26V-36V | 200A-350A / 24V-38V |
| VU、OH    |               | 150A-220A / 24V-28V | 160A-220A / 24V-28V |

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