

## Atom Arc 10018-MM

Atom Arc 10018-MM electrodes are used to weld low-alloy, high-tensile steels where welds of 100 ksi (690 MPa) minimum tensile strength is required. This electrode is recommended for use in the weld repair and fabrication of Mn-Mo steel castings and armor plate.

### Specifications

|                        |                                                          |
|------------------------|----------------------------------------------------------|
| <b>Classifications</b> | ASME SFA 5.5 : E10018-D2 H4R<br>AWS A5.5 : E10018-D2 H4R |
|------------------------|----------------------------------------------------------|

|                            |                                           |
|----------------------------|-------------------------------------------|
| <b>Welding Current</b>     | AC, DC+                                   |
| <b>Diffusible Hydrogen</b> | < 4.0 ml/100g                             |
| <b>Alloy Type</b>          | Low alloyed (1.9% Mn - 0.3% Ni - 0.3% Mo) |

### Typical Tensile Properties

| Condition                                       | Yield Strength     | Tensile Strength    | Elongation |
|-------------------------------------------------|--------------------|---------------------|------------|
| Stress Relieved<br>1 hour(s) 620 °C ( 1148 °F ) | 644 MPa ( 93 ksi ) | 716 MPa ( 104 ksi ) | 24 %       |

### Typical Charpy V-Notch Properties

| Condition       | Testing Temperature | Impact Value      |
|-----------------|---------------------|-------------------|
| Stress Relieved | -50 °C ( -58 °F )   | 33 J ( 24 ft-lb ) |

### Typical Weld Metal Analysis %

| C     | Mn   | Si   | S    | P    | Ni   | Cr   | Mo   | V     | Cu    |
|-------|------|------|------|------|------|------|------|-------|-------|
| 0.081 | 1.93 | 0.33 | 0.01 | 0.01 | 0.32 | 0.17 | 0.34 | 0.011 | 0.083 |

### Typical Weld Metal Analysis %

| Nb    |
|-------|
| 0.004 |

### Deposition Data

| Diameter                              | Current   | Voltage | Deposition Efficiency (%) | Burn-off Time /Electrode | Deposition Rate @ 90% I max |
|---------------------------------------|-----------|---------|---------------------------|--------------------------|-----------------------------|
| 2.4 x 356.0 mm<br>( 3/32 x 14.0 in. ) | 70-110 A  | 23.2 V  | 69.01 %                   | 60 sec                   | 0.92 kg/h<br>( 2.0 lbs/h )  |
| 3.2 x 356.0 mm<br>( 1/8 x 14.0 in. )  | 90-160 A  | 23.9 V  | 72.23 %                   | 70 sec                   | 1.36 kg/h<br>( 3.0 lbs/h )  |
| 4.0 x 356.0 mm<br>( 5/32 x 14.0 in. ) | 130-220 A | 24.3 V  | 72.06 %                   | 75 sec                   | 1.89 kg/h<br>( 4.2 lbs/h )  |
| 4.8 x 356.0 mm<br>( 3/16 x 14.0 in. ) | 200-300 A | 24.3 V  | 71.04 %                   | 74 sec                   | 2.53 kg/h<br>( 5.6 lbs/h )  |
| 5.6 x 457.0 mm<br>( 7/32 x 18.0 in. ) | 250-350 A | 24.9 V  | 75.80 %                   | 100 sec                  | 3.28 kg/h<br>( 7.2 lbs/h )  |
| 6.4 x 457.0 mm<br>( 1/4 x 18.0 in. )  | 300-400 A | 25.5 V  | 77.06 %                   | 103 sec                  | 4.22 kg/h<br>( 9.3 lbs/h )  |