

## Atom Arc 7018-Mo



Atom Arc 7018-Mo electrodes contain 1/2% Mo as alloy addition. They are recommended for welding low-alloy, high tensile steels of 50 ksi (345 MPa) minimum yield strength and also 1/2% Molybdenum steels and pipes. They are widely employed in the fabrication and erection of boilers, pressure piping and tubing and other pressure vessel applications.

|                        |                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------|
| <b>Classifications</b> | ASME SFA 5.5<br>AWS A5.5 : E7018-A1 H4R                                                          |
| <b>Approvals</b>       | ABS : AWS A5.5: E7018-A1                                                                         |
| <b>Industry</b>        | Civil Construction<br>Mobile Equipment<br>Power Generation<br>Industrial and General Fabrication |

|                        |                          |
|------------------------|--------------------------|
| <b>Welding Current</b> | AC or DC+                |
| <b>Coating Type</b>    | Low-hydrogen iron powder |
| <b>CTOD-Tested</b>     | false                    |

### Typical Tensile Properties

| Condition                                        | Yield Strength     | Tensile Strength   | Elongation |
|--------------------------------------------------|--------------------|--------------------|------------|
| Stress Relieved<br>8 hour(s) 620 °C ( 1150 °F )  | 524 MPa ( 76 ksi ) | 607 MPa ( 88 ksi ) | 28 %       |
| Stress Relieved<br>20 hour(s) 620 °C ( 1150 °F ) | 504 MPa ( 73 ksi ) | 587 MPa ( 85 ksi ) | 29 %       |
| Stress Relieved<br>1 hour(s) 620 °C ( 1150 °F )  | 518 MPa ( 75 ksi ) | 607 MPa ( 88 ksi ) | 29 %       |
| As Welded                                        | 530 MPa ( 77 ksi ) | 600 MPa ( 87 ksi ) | 27 %       |

### Typical Charpy V-Notch Properties

| Condition                                        | Testing Temperature | Impact Value        |
|--------------------------------------------------|---------------------|---------------------|
| Stress Relieved<br>20 hour(s) 620 °C ( 1150 °F ) | 15 °C ( 60 °F )     | 203 J ( 150 ft-lb ) |
| Stress Relieved<br>8 hour(s) 620 °C ( 1150 °F )  | 0 °C ( 30 °F )      | 146 J ( 108 ft-lb ) |
| Stress Relieved<br>8 hour(s) 620 °C ( 1150 °F )  | -30 °C ( -20 °F )   | 94 J ( 69 ft-lb )   |
| Stress Relieved<br>13 hour(s) 620 °C ( 1150 °F ) | 10 °C ( 10 °F )     | 183 J ( 135 ft-lb ) |

### Typical Weld Metal Analysis %

| C    | Mn   | Si   | S    | P     | Mo   |
|------|------|------|------|-------|------|
| 0.04 | 0.80 | 0.40 | 0.01 | 0.012 | 0.55 |

### Deposition Data

| Diameter              | Current  | Efficiency (%) | Optimal Amps | Deposition Rate           |
|-----------------------|----------|----------------|--------------|---------------------------|
| 3.2 mm<br>( 1/8 in. ) | 90-160 A | 71.6 %         | 120 A        | 1.2 kg/h<br>( 2.6 lbs/h ) |



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|------------------------|-----------|----------------|--------------|---------------------------|
| Diameter               | Current   | Efficiency (%) | Optimal Amps | Deposition Rate           |
| 3.2 mm<br>( 1/8 in. )  | 90-160 A  | 70.9 %         | 140 A        | 1.2 kg/h<br>( 2.7 lbs/h ) |
| 4.8 mm<br>( 3/16 in. ) | 200-300 A | 76.4 %         | 200 A        | 2.2 kg/h<br>( 4.9 lbs/h ) |
| 4.8 mm<br>( 3/16 in. ) | 200-300 A | 74.6 %         | 250 A        | 2.4 kg/h<br>( 5.4 lbs/h ) |
| 2.4 mm<br>( 3/32 in. ) | 70-100 A  | 66.3 %         | 90 A         | 0.8 kg/h<br>( 1.7 lbs/h ) |
| 4.0 mm<br>( 5/32 in. ) | 130-220 A | 75 %           | 140 A        | 1.4 kg/h<br>( 3.1 lbs/h ) |
| 4.0 mm<br>( 5/32 in. ) | 130-220 A | 73.5 %         | 170 A        | 1.7 kg/h<br>( 3.8 lbs/h ) |
| 5.6 mm<br>( 7/32 in. ) | 250-350 A | 75 %           | 250 A        | 2.9 kg/h<br>( 6.5 lbs/h ) |
| 5.6 mm<br>( 7/32 in. ) | 250-350 A | 74 %           | 300 A        | 3.3 kg/h<br>( 7.2 lbs/h ) |