

## Atom Arc 8018-CM



Atom Arc 8018-CM electrodes contain 1 1/4% Cr and 1/2% Mo as alloy addition. They are used for the welding of such steels as 1/2% Cr - 1/2% Mo, 1% Cr - 1/2% Mo, and 1 1/4% Cr - 1/2% Mo, which are used principally in power piping and boiler work for the fabrication of plates, pipes, tubes, castings, and forgings.

|                        |                                                     |
|------------------------|-----------------------------------------------------|
| <b>Classifications</b> | ASME SFA 5.5<br>AWS A5.5: E8018-B2 H4R              |
| <b>Approvals</b>       | ABS AWS A5.5: E8018-B2<br>MIL-E-22200/8 MIL-8018-B2 |
| <b>Industry</b>        | Pipeline<br>Power Generation<br>Pressure Vessels    |

Approvals are based on factory location. Please contact ESAB for more information.

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

### Typical Tensile Properties

| Condition                          | Yield Strength   | Tensile Strength  | Elongation |
|------------------------------------|------------------|-------------------|------------|
| Stress Relieved 8hr 620°C (1150°F) | 607 MPa (88 ksi) | 704 MPa (102 ksi) | 24 %       |
| Stress Relieved 8hr 690°C (1275°F) | 566 MPa (82 ksi) | 662 MPa (96 ksi)  | 26 %       |
| Stress Relieved 1hr 705°C (1300°F) | 621 MPa (90 ksi) | 642 MPa (93 ksi)  | 25 %       |
| Stress Relieved 1hr 690°C (1275°F) | 580 MPa (84 ksi) | 669 MPa (97 ksi)  | 25 %       |
| As Welded                          | 607 MPa (88 ksi) | 704 MPa (102 ksi) | 24 %       |

### Typical Charpy V-Notch Properties

| Condition                          | Testing Temperature | Impact Value     |
|------------------------------------|---------------------|------------------|
| Stress Relieved 8hr 607°C (1125°F) | 0 °C (30 °F)        | 108 J (80 ft-lb) |
| Stress Relieved 8hr 620°C (1150°F) | 0 °C (30 °F)        | 113 J (83 ft-lb) |
| Stress Relieved 8hr 677°C (1250°F) | 0 °C (30 °F)        | 133 J (98 ft-lb) |

### Typical Weld Metal Analysis %

| C    | Mn   | Si   | S     | P     | Cr   | Mo   | X-bar    |
|------|------|------|-------|-------|------|------|----------|
| 0.06 | 0.80 | 0.50 | 0.008 | 0.011 | 1.30 | 0.57 | < 15 ppm |

### Deposition Data

| Diameter          | Optimal Amps | Current   | Deposition Rate     | Efficiency % |
|-------------------|--------------|-----------|---------------------|--------------|
| 2.4 mm (3/32 in.) | 90 A         | 70-100 A  | 0.8 kg/h (1.7 lb/h) | 66.3 %       |
| 3.2 mm (1/8 in.)  | 120 A        | 90-160 A  | 1.2 kg/h (2.6 lb/h) | 71.6 %       |
| 3.2 mm (1/8 in.)  | 140 A        | 90-160 A  | 1.2 kg/h (2.7 lb/h) | 70.9 %       |
| 4.0 mm (5/32 in.) | 140 A        | 130-220 A | 1.1 kg/h (3.1 lb/h) | 75 %         |
| 4.0 mm (5/32 in.) | 170 A        | 130-220 A | 1.7 kg/h (3.8 lb/h) | 73.5 %       |
| 4.8 mm (3/16 in.) | 200 A        | 200-300 A | 2.2 kg/h (4.9 lb/h) | 76.4 %       |
| 4.8 mm (3/16 in.) | 250 A        | 200-300 A | 2.4 kg/h (5.4 lb/h) | 74.6 %       |
| 5.6 mm (7/32 in.) | 250 A        | 250-350 A | 2.9 kg/h (6.5 lb/h) | 75 %         |
| 5.6 mm (7/32 in.) | 300 A        | 250-350 A | 3.3 kg/h (7.2 lb/h) | 74 %         |
| 6.4 mm (1/4 in.)  | 300 A        | 300-400 A | 3.5 kg/h (7.7 lb/h) | 78 %         |
| 6.4 mm (1/4 in.)  | 350 A        | 300-400 A | 3.9 kg/h (8.7 lb/h) | 77 %         |