

## Coreweld C6 ECO

Coreweld C6 ECO is a low manganese emissions, high efficiency, metal cored wire developed in response to new EPA\* regulations and guidelines from ACGIH (American Conference of Government Industrial Hygienists) for Manganese fume exposure limits. With all the same enhanced features of ESAB's standard Coreweld C6, Coreweld C6 ECO has more than 50 percent lower manganese content and is designed to provide excellent operating qualities while significantly reducing the manganese levels in the welding fumes when compared to standard metal-cored electrodes of the same classification. ESAB's optimized formulation aids users in their efforts to reduce exposure to manganese in the welding environment while providing good mechanical properties and low weld metal diffusible hydrogen levels. Coreweld C6 ECO offers the same enhanced features of ESAB's standard Coreweld C6 with welder-friendly operating characteristics, including consistent arc stability, very low spatter, good bead shape and minimal clean-up in an easy-to-use wire. Its low diffusible hydrogen level helps avoid hydrogen-induced cold cracking in the welding of high strength steel. Combining the Coreweld C6 ECO low manganese formula with argon-based shielding gases and GMAW power supplies allows users to aggressively reduce the manganese concentration in welding fume while achieving the proven performance expected from ESAB. Coreweld C6 ECO is well suited for both hand held and robotic or automated applications in the automotive industry, as well as for civil construction, mobile and heavy equipment, shipbuilding, rail car manufacturing, and general fabrication. Typical Diffusible Hydrogen: 4 ml/100g of deposited weld metal (with 75% Ar /25% CO<sub>2</sub>) \*EPA 40CFR Part 63 Subpart XXXXXX; 1.0% Mn, 0.1% Ni, 0.1% Cr, 0.1% Cd and 0.1% Pb, by total weight of the electrode.

| Specifications         |   |
|------------------------|---|
| <b>Classifications</b> | SFA/AWS A5.18 : E70C-6M H4  |
| <b>Approvals</b>       | ABS : 3YSA (H5)<br>CWB : E490T15-M20A3-CS1-H4<br>CWB : E492C-6M-H4  |
| <b>Industry</b>        | Automotive<br>Civil Construction<br>Ship/Barge Building<br>Railcars<br>General Cast Iron Repair and Fabrication |

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

| Typical Tensile Properties |                    |                    |            |
|----------------------------|--------------------|--------------------|------------|
| Condition                  | Yield Strength     | Tensile Strength   | Elongation |
| <b>M20</b>                 |                    |                    |            |
| As Welded                  | 462 MPa ( 67 ksi ) | 538 MPa ( 78 ksi ) | 30 %       |
| <b>M21</b>                 |                    |                    |            |
| As Welded                  | 490 MPa ( 71 ksi ) | 579 MPa ( 84 ksi ) | 30 %       |

| Typical Charpy V-Notch Properties |                     |                   |
|-----------------------------------|---------------------|-------------------|
| Condition                         | Testing Temperature | Impact Value      |
| <b>M20</b>                        |                     |                   |
| As Welded                         | -20 °C ( -4 °F )    | 73 J ( 54 ft-lb ) |
| As Welded                         | -40 °C ( -40 °F )   | 57 J ( 42 ft-lb ) |
| <b>M21</b>                        |                     |                   |
| As Welded                         | -29 °C ( -20 °F )   | 79 J ( 58 ft-lb ) |
| As Welded                         | -40 °C ( -40 °F )   | 52 J ( 38 ft-lb ) |

| Typical Weld Metal Analysis % |      |      |       |       |      |      |      |       |      |
|-------------------------------|------|------|-------|-------|------|------|------|-------|------|
| C                             | Mn   | Si   | S     | P     | Ni   | Cr   | Mo   | V     | Cu   |
| 0.07                          | 0.74 | 0.81 | 0.010 | 0.010 | 0.03 | 0.06 | 0.01 | 0.001 | 0.10 |

| Deposition Data         |           |         |                                       |                                   |
|-------------------------|-----------|---------|---------------------------------------|-----------------------------------|
| Diameter                | Current   | Voltage | Wire Feed Speed                       | Deposition Rate                   |
| 1.2 mm<br>( 0.045 in. ) | 230-390 A | 25-32 V | 7.6-16.5 m/min<br>( 299-650 in./min ) | 3.5-7.5 kg/h<br>( 7.7-16. lbs/h ) |
| 1.2 mm<br>( 0.045 in. ) | 200-360 A | 27-33 V | 6.4-14.0 m/min<br>( 252-551 in./min ) | 3.0-6.3 kg/h<br>( 6.6-13. lbs/h ) |
| 1.4 mm<br>( 0.052 in. ) | 240-420 A | 25-32 V | 6.4-14.0 m/min<br>( 252-551 in./min ) | 3.5-7.5 kg/h<br>( 7.7-16. lbs/h ) |

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### Deposition Data

| Diameter                | Current   | Voltage | Wire Feed Speed                       | Deposition Rate                   |
|-------------------------|-----------|---------|---------------------------------------|-----------------------------------|
| 1.4 mm<br>( 0.052 in. ) | 280-410 A | 28-34 V | 7.6-13.3 m/min<br>( 299-524 in./min ) | 4.2-7.1 kg/h<br>( 9.3-15. lbs/h ) |
| 1.6 mm<br>( 1/16 in. )  | 290-430 A | 26-29 V | 5.1-8.9 m/min<br>( 201-350 in./min )  | 4.0-7.2 kg/h<br>( 8.8-15. lbs/h ) |
| 1.6 mm<br>( 1/16 in. )  | 230-430 A | 26-32 V | 3.8-8.9 m/min<br>( 150-350 in./min )  | 2.8-7.2 kg/h<br>( 6.2-15. lbs/h ) |

### Recommended Welding Parameters

| Current                            | Wire Diameter          | TTW Dist.            | Voltage | Wire Feed Speed                        |
|------------------------------------|------------------------|----------------------|---------|--|
| <b>75% Ar - 25% CO<sub>2</sub></b> |                        |                      |         |  |
| 190-420 A                          | 1.4 mm<br>( .052 in. ) | 16 mm<br>( 5/8 in. ) | 24-32 V | 440-1346 cm/min<br>( 180-530 in./min ) |
| 170-390 A                          | 1.2 mm<br>( .045 in. ) | 16 mm<br>( 5/8 in. ) | 24-32 V | 640-1400 cm/min<br>( 250-550 in./min ) |
| 230-430 A                          | 1.6 mm<br>( 1/16 in. ) | 19 mm<br>( 3/4 in. ) | 24-29 V | 380-1219 cm/min<br>( 150-480 in./min ) |