**TECHNICAL DATA SHEET**

# ECRC® 230 - 40

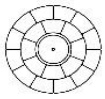
Epsilon Advanced Conductors

EPSILON CABLE

| | |
|---|---|
| International size | **REYKJAVIK** |
| ASTM Size | **ORIOLE** |
| Technical designation | ECRC® 230-AL0/40-S1 |



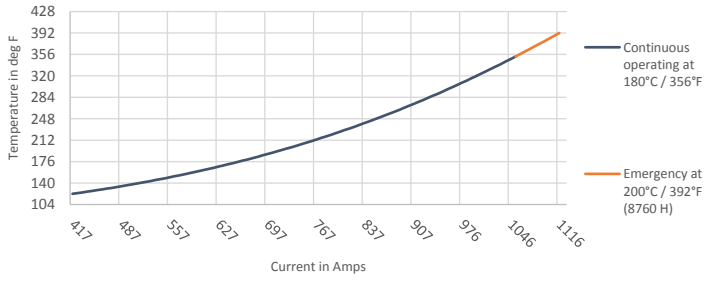
*Governing Units: Metric to US Customary (Unit conversion)*

| STRANDING CONFIGURATION | | Metric | | US Customary | |
|---|---|---|---|---|---|
|  | *No. & Diameter of composite core* | | 1 x 7.11 mm | 1 x 0.280 | in. |
| | *Aluminum layers construction / Height* | 20 TW x | 2.93 mm | 0.115 | in. |
| | *1st layer composition and Øeq* | 8 x | 3.72 mm | 0.146 | in. |
| | *2nd layer composition and Øeq* | 12 x | 3.80 mm | 0.150 | in. |
| | | | | | |
| | | | | | |
| | *Lay Direction of outer layer* | Right Hand (Z) | | | |

| CONDUCTOR PROPERTIES | | | | |
|---|---|---|---|---|
| Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS) | 223.1 | mm² | 440.3 | kcmil |
| Cross Sectional Area - Composite Core | 39.7 | mm² | 0.0615 | in.² |
| Total Area of Conductor Cross Section | 262.8 | mm² | 0.4074 | in.² |
| Nominal equivalent Aluminum Area (1350-H19 at 61%IACS) | 230.4 | mm² | 454.8 | kcmil |
| Overall Diameter of Conductor | 18.82 | mm | 0.741 | in. |
| Mass per unit length - Annealed Aluminum | 617.3 | kg/km | 414.8 | lb/kft |
| Mass per unit length - Core | 73.5 | kg/km | 49.4 | lb/kft |
| Mass per unit length - Conductor | 690.8 | kg/km | 464.2 | lb/kft |
| Ultimate Tensile Strength of Conductor | 102.5 | kN | 23.0 | kips |
| Core Rated Tensile Strength | 89.1 | kN | 20.0 | kips |
| Coefficient of Linear Expansion Above Thermal Kneepoint | 1.3 | $10^{-6}$ K$^{-1}$ | 0.722 | $10^{-6}$ F$^{-1}$ |
| Coefficient of Linear Expansion Below Thermal Kneepoint | 16.82 | $10^{-6}$ K$^{-1}$ | 9.34 | $10^{-6}$ F$^{-1}$ |
| Final Modulus of Elasticity Above Thermal Kneepoint | 123 | GPa | 17.84 | Msi |
| Final Modulus of Elasticity Below Thermal Kneepoint | 65 | GPa | 9.47 | Msi |

| THERMAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| Maximum Continuous Operating Temperature[2] (surface temperature) | 180 | °C | 356 | °F |
| Maximum Emergency Temperature / 8760 Hours[2] (surface temperature) | 200 | °C | 392 | °F |
| Thermal Heat Capacity for Annealed Aluminum Layers | 589.5 | W-s/m-°C | 99.8 | W-s/ft-°F |
| Thermal Heat Capacity for Composite Core | 58.8 | W-s/m-°C | 9.9 | W-s/ft-°F |

| ELECTRICAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| Maximum DC Electrical Resistance at 20°C / 68°F *(1370-O at 63%IACS)* | 0.1255 | ohm/km | 0.2020 | ohm/mile |
| Temperature Coefficient of Resistance | 4.03 | $10^{-3}$ K$^{-1}$ | 2.089 | $10^{-3}$ F$^{-1}$ |
| AC Nominal Resistance at 25°C / 77°F (surface temperature) | 0.1289 | ohm/km | 0.2075 | ohm/mile |
| AC Nominal Resistance at 75°C / 167°F (surface temperature) | 0.1541 | ohm/km | 0.2480 | ohm/mile |
| AC Nominal Resistance at 180°C / 356°F (surface temperature) | 0.2070 | ohm/km | 0.3331 | ohm/mile |
| AC Nominal Resistance at 200°C / 392°F (surface temperature) | 0.2171 | ohm/km | 0.3494 | ohm/mile |
| AC Current Rating at 180°C / 356°F (surface temperature) [1] | 1,059 A | | | |
| AC Current Rating at 200°C / 392°F (surface temperature) [1] | 1,116 A | | | |




| | | | |
|---|---|---|---|
| Geometric Mean Radius (GMR) | | | |
| 7.74 | mm | 0.0254 | ft. |
| Inductive Reactance Ø0.3m (Ø0.98ft) radius | | | |
| 0.231 | Ω.km-1 | 0.3718 | ohm/mile |
| Capacitive Reactance Ø0.3m (Ø0.98ft) radius | | | |
| 0.199 | MΩ.km | 0.1237 | Mohm-mile |

*(1) Ampacity calculations based on IEEE Standard 738-2012, according to the following data:*

*25 °C / 77 °F ambient temperature, 0.61 m/s (2 ft/s) wind velocity with an angle of 90 °,*

*1000 W/m² (92.9 W/ft²) solar radiation, 0.5 solar absorption coefficient,*

*0.6 emissivity coefficient, Resistance AC at 60 Hz current frequency.*

*(2) Temperatures defined according to ASTM B987-20.*

*Reference standards for core properties: ASTM B987-20.*

*Reference standards for electrical specifications: IEC 62219.*

*Reference standards for stranding parameters: ASTM B857-14/IEC 62219.*

*Rated specifications may slightly change depending on conductor manufacturer.*

*Revision 02*

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