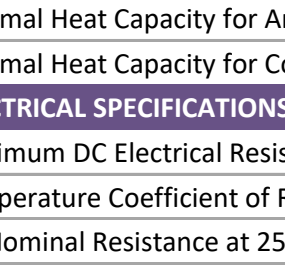
| TECHNICAL DATA SHEET | Ultra Low Sag (ULS) | **ECRC® ULS 820 - 60**<br>Epsilon Advanced Conductors | EPSILON CABLE |
|---|---|---|---|
| International size | **PARIS** | | |
| ASTM Size | **BITTERN** | | |
| Technical designation | ECRC® 820-AL0/60-X1 | | |



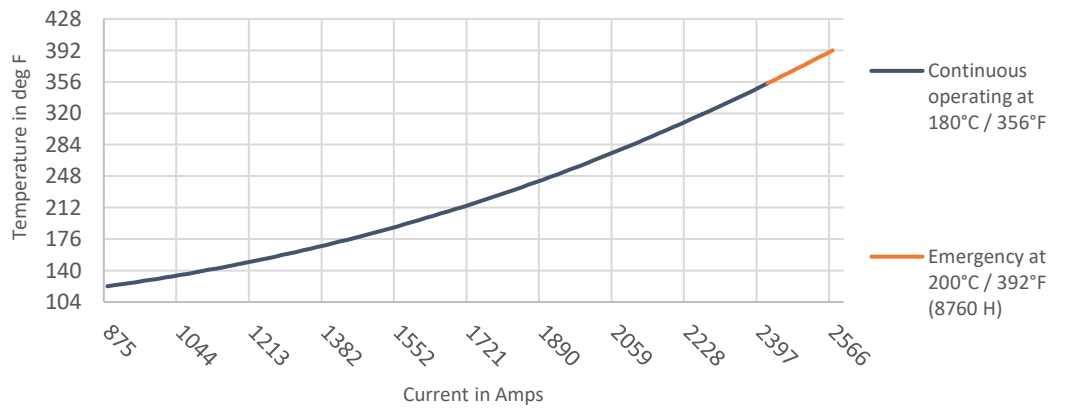
*Governing Units: Metric to US Customary (Unit conversion)*

| STRANDING CONFIGURATION | | Metric | | US Customary | |
|---|---|---|---|---|---|
|  | *No. & Diameter of the core* | 1 x 8.76 | mm | 1 x 0.345 | in. |
| | *Aluminium layers construction / Height* | 38 TW x 4.24 | mm | 0.167 | in. |
| | *1st layer composition and Øeq* | 8 x 5.14 | mm | 0.202 | in. |
| | *2nd layer composition and Øeq* | 13 x 5.16 | mm | 0.203 | in. |
| | *3st layer composition and Øeq* | 17 x 5.31 | mm | 0.209 | in. |
| | | | | | |
| | *Lay Direction of outer layer* | Right Hand (Z) | | | |

| CONDUCTOR PROPERTIES | | | | |
|---|---|---|---|---|
| Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS) | 814.6 | $mm^2$ | 1607.6 | kcmil |
| Cross Sectional Area - Composite Core | 60.3 | $mm^2$ | 0.0934 | $in.^2$ |
| Total Area of Conductor Cross Section | 874.8 | $mm^2$ | 1.3560 | $in.^2$ |
| Nominal equivalent Aluminum Area (1350-H19 at 61%IACS) | 841.3 | $mm^2$ | 1660.3 | kcmil |
| Overall Diameter of Conductor | 34.2 | mm | 1.346 | in. |
| Mass per unit length - Annealed Aluminum | 2,255.0 | kg/km | 1,515.3 | lb/kft |
| Mass per unit length - Core | 110.9 | kg/km | 74.5 | lb/kft |
| Mass per unit length - Conductor | 2,365.9 | kg/km | 1,589.8 | lb/kft |
| Ultimate Tensile Strength of Conductor | 204.8 | kN | 46.0 | kips |
| Core Rated Tensile Strength | 155.9 | kN | 35.0 | kips |
| Coefficient of Linear Expansion Above Thermal Kneepoint | 0.75 | $10^{-6}$ $K^{-1}$ | 0.417 | $10^{-6}$ $F^{-1}$ |
| Coefficient of Linear Expansion Below Thermal Kneepoint | 19.35 | $10^{-6}$ $K^{-1}$ | 10.74 | $10^{-6}$ $F^{-1}$ |
| Final Modulus of Elasticity Above Thermal Kneepoint | 146 | GPa | 21.18 | Msi |
| Final Modulus of Elasticity Below Thermal Kneepoint | 61 | GPa | 8.89 | 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 | 2,153.5 | W-s/m-°C | 364.5 | W-s/ft-°F |
| Thermal Heat Capacity for Composite Core | 88.7 | W-s/m-°C | 15.0 | W-s/ft-°F |

| ELECTRICAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| Maximum DC Electrical Resistance at 20°C / 68°F *(1370-O at 63%IACS)* | 0.0344 | ohm/km | 0.0554 | 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) | 0.0382 | ohm/km | 0.0615 | ohm/mile |
| AC Nominal Resistance at 75°C / 167°F (surface temperature) | 0.0447 | ohm/km | 0.0719 | ohm/mile |
| AC Nominal Resistance at 180°C / 356°F (surface temperature) | 0.0586 | ohm/km | 0.0943 | ohm/mile |
| AC Nominal Resistance at 200°C / 392°F (surface temperature) | 0.0613 | ohm/km | 0.0986 | ohm/mile |
| AC Current Rating at 180°C / 356°F (surface temperature) [1] | 2,421 A | | | |
| AC Current Rating at 200°C / 392°F (surface temperature) [1] | 2,566 A | | | |




| Geometric Mean Radius (GMR) | | | |
|---|---|---|---|
| 13.66 | mm | 0.0448 | ft. |
| **Inductive Reactance Ø0.3m (Ø0.98ft) radius** | | | |
| 0.195 | Ω.km-1 | 0.3138 | ohm/mile |
| **Capacitive Reactance Ø0.3m (Ø0.98ft) radius** | | | |
| 0.165 | MΩ.km | 0.1025 | 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.*

*Reference standards for core properties: ASTM B987.*

*Reference standards for electrical specifications: IEC 62219.*

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

*Depending on conductor manufacturer rated specifications may slightly change.*

*Revision 00*

*Ref. Document ST25-00071*

*Date 14-Aug-2025*

*This document is the property of EPSILON COMPOSITE*

contact@epsilon-cable.com

www.epsilon-cable.com