

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 470 - 60

High Temperature Low Sag Conductors

EPSILON
CABLE

International size **STOCKHOLM**

ASTM Size **LUBBOCK**



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

| | | Metric | | | US Customary | |
|--|---------------------------------------|----------------|------|----|--------------|-----|
| | No. & Diameter of composite core | 1 x 8.76 | mm | | 1 x 0.345 | in. |
| | Aluminum layers construction / Height | 20 TW x | 4.41 | mm | 0.174 | in. |
| | 1st layer composition and ϕ_{eq} | 8 x | 5.27 | mm | 0.207 | in. |
| | 2nd layer composition and ϕ_{eq} | 12 x | 5.54 | mm | 0.218 | in. |
| | Lay Direction of outer layer | Right Hand (Z) | | | | |

CONDUCTOR PROPERTIES

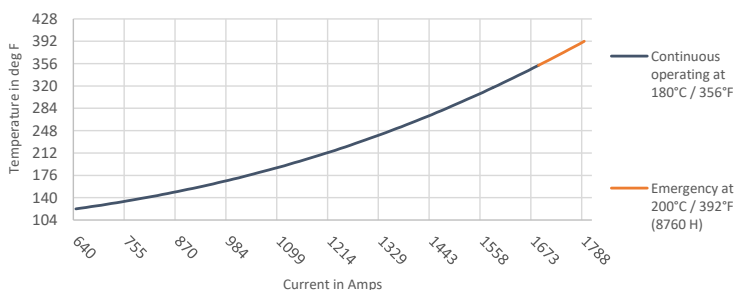
| | | | | |
|--|---------|----------------------------------|--------|----------------------------------|
| Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS) | 463.4 | mm ² | 914.5 | kcmil |
| Cross Sectional Area - Composite Core | 60.3 | mm ² | 0.0934 | in. ² |
| Total Area of Conductor Cross Section | 523.6 | mm ² | 0.8116 | in. ² |
| Nominal equivalent Aluminum Area (1350-H19 at 61%IACS) | 478.6 | mm ² | 944.5 | kcmil |
| Overall Diameter of Conductor | 26.4 | mm | 1.039 | in. |
| Mass per unit length - Annealed Aluminum | 1,281.0 | kg/km | 860.8 | lb/kft |
| Mass per unit length - Core | 111.5 | kg/km | 74.9 | lb/kft |
| Mass per unit length - Conductor | 1,392.5 | kg/km | 935.7 | lb/kft |
| Ultimate Tensile Strength of Conductor | 163.0 | kN | 36.7 | kips |
| Core Rated Tensile Strength | 135.2 | kN | 30.4 | 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 | 18.11 | 10 ⁻⁶ K ⁻¹ | 10.06 | 10 ⁻⁶ F ⁻¹ |
| Final Modulus of Elasticity Above Thermal Kneepoint | 123 | GPa | 17.84 | Msi |
| Final Modulus of Elasticity Below Thermal Kneepoint | 63 | GPa | 9.11 | 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 | 1,223.4 | W-s/m-°C | 207.1 | W-s/ft-°F |
| Thermal Heat Capacity for Composite Core | 89.2 | W-s/m-°C | 15.1 | W-s/ft-°F |

ELECTRICAL SPECIFICATIONS

| | | | | |
|---|---------|----------------------------------|--------|----------------------------------|
| Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS) | 0.0604 | ohm/km | 0.0972 | ohm/mile |
| Temperature Coefficient of Resistance | 4.07 | 10 ⁻³ K ⁻¹ | 2.109 | 10 ⁻³ F ⁻¹ |
| AC Nominal Resistance at 25°C / 77°F (surface temperature) | 0.0635 | ohm/km | 0.1022 | ohm/mile |
| AC Nominal Resistance at 75°C / 167°F (surface temperature) | 0.0755 | ohm/km | 0.1215 | ohm/mile |
| AC Nominal Resistance at 180°C / 356°F (surface temperature) | 0.1009 | ohm/km | 0.1624 | ohm/mile |
| AC Nominal Resistance at 200°C / 392°F (surface temperature) | 0.1058 | ohm/km | 0.1702 | ohm/mile |
| AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾ | 1,692 A | | | |
| AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾ | 1,788 A | | | |



Geometric Mean Radius (GMR)

10.73 mm 0.0352 ft.

Inductive Reactance $\phi 0.3m$ ($\phi 0.98ft$) radius0.21 $\Omega \cdot km^{-1}$ 0.3380 ohm/mileCapacitive Reactance $\phi 0.3m$ ($\phi 0.98ft$) radius0.18 M $\Omega \cdot km$ 0.1118 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 01

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contact@epsilon-cable.comwww.epsilon-cable.com