

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 160 - 18

High Temperature Low Sag Conductors

EPSILON
CABLEInternational size **BERN**

ASTM Size

-



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

		Metric			US Customary	
	No. & Diameter of composite core	1 x 4.82	mm		1 x 0.190	in.
	Aluminum layers construction / Height	16 TW x	2.67	mm	0.105	in.
	1st layer composition and Øeq	6 x	3.54	mm	0.139	in.
	2nd layer composition and Øeq	10 x	3.57	mm	0.141	in.
	Lay Direction of outer layer	Right Hand (Z)				

CONDUCTOR PROPERTIES

Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	159.1	mm ²	314.1	kcmil
Cross Sectional Area - Composite Core	18.2	mm ²	0.0283	in. ²
Total Area of Conductor Cross Section	177.4	mm ²	0.2749	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	164.4	mm ²	324.4	kcmil
Overall Diameter of Conductor	15.5	mm	0.610	in.
Mass per unit length - Annealed Aluminum	440.0	kg/km	295.7	lb/kft
Mass per unit length - Core	33.8	kg/km	22.7	lb/kft
Mass per unit length - Conductor	473.8	kg/km	318.3	lb/kft
Ultimate Tensile Strength of Conductor	48.5	kN	10.9	kips
Core Rated Tensile Strength	39.0	kN	8.8	kips
Coefficient of Linear Expansion Above Thermal Kneepoint	1.6	10 ⁻⁶ K ⁻¹	0.889	10 ⁻⁶ F ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	18.95	10 ⁻⁶ K ⁻¹	10.52	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	112	GPa	16.24	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	61	GPa	8.83	Msi

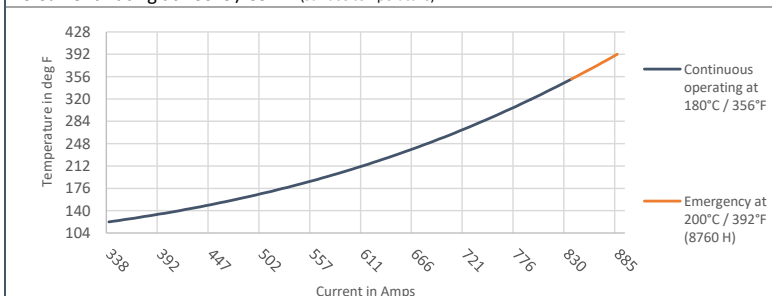
THERMAL SPECIFICATIONS

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	420.2	W-s/m-°C	71.1	W-s/ft-°F
Thermal Heat Capacity for Composite Core	27.0	W-s/m-°C	4.6	W-s/ft-°F

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.1758	ohm/km	0.2829	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)	0.1800	ohm/km	0.2897	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.2157	ohm/km	0.3471	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.2907	ohm/km	0.4678	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.3050	ohm/km	0.4908	ohm/mile

AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	841 A
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	885 A



Geometric Mean Radius (GMR)

- mm - ft.

Inductive Reactance Ø0.3m (Ø0.98ft) radius

- Ω.km-1 - ohm/mile

Capacitive Reactance Ø0.3m (Ø0.98ft) radius

- MΩ.km - 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

Ref. Document ST21-00090

Date 12-Sep-2023

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contact@epsilon-cable.com
www.epsilon-cable.com