

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 160 - 47

High Temperature Low Sag Conductors

EPSILON
CABLE

International size **JAIPUR**

ASTM Size

-



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION



No. & Diameter of composite core

Metric

US Customary

Aluminum layers construction / Height

1 x 7.75 mm

1 x 0.305 in.

1st layer composition and Øeq

24 TW x 2.19 mm

0.086 in.

2nd layer composition and Øeq

10 x 2.84 mm

0.112 in.

14 x 2.87 mm

0.113 in.

Lay Direction of outer layer

Right Hand (Z)

CONDUCTOR PROPERTIES

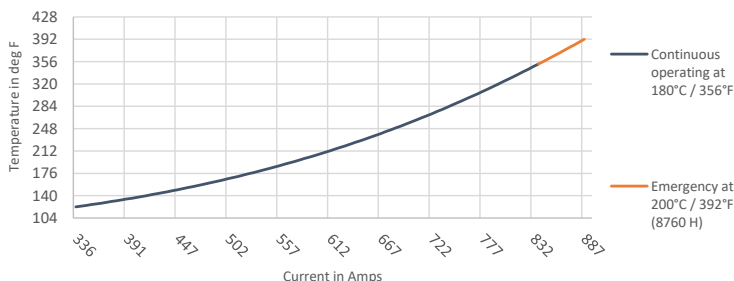
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	153.8	mm ²	303.6	kcmil
Cross Sectional Area - Composite Core	47.2	mm ²	0.0731	in. ²
Total Area of Conductor Cross Section	201.0	mm ²	0.3116	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	158.9	mm ²	313.5	kcmil
Overall Diameter of Conductor	16.51	mm	0.650	in.
Mass per unit length - Annealed Aluminum	425.9	kg/km	286.2	lb/kft
Mass per unit length - Core	87.3	kg/km	58.6	lb/kft
Mass per unit length - Conductor	513.2	kg/km	344.8	lb/kft
Ultimate Tensile Strength of Conductor	115.1	kN	25.9	kips
Core Rated Tensile Strength	105.8	kN	23.8	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	14.17	10 ⁻⁶ K ⁻¹	7.87	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	71	GPa	10.29	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	406.7	W-s/m-°C	68.8	W-s/ft-°F
Thermal Heat Capacity for Composite Core	69.8	W-s/m-°C	11.8	W-s/ft-°F

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.1822	ohm/km	0.2932	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)	0.1865	ohm/km	0.3002	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.2235	ohm/km	0.3597	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.3012	ohm/km	0.4848	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.3161	ohm/km	0.5086	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	843 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	887 A			



Geometric Mean Radius (GMR)

6.97 mm

0.0229 ft.

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

0.237

Ω.km-1

0.3814 ohm/mile

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

0.207

MΩ.km

0.1286 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 ST22-00054

Date 12-Sep-2023

This document is the property of EPSILON COMPOSITE

contact@epsilon-cable.com

www.epsilon-cable.com