

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 410 - 47

High Temperature Low Sag Conductors

EPSILON
CABLE

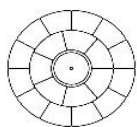
International size **CORDOBA**

ASTM Size -



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION



		Metric		US Customary	
No. & Diameter of composite core		1 x 7.75	mm	1 x 0.305	in.
Aluminum layers construction / Height	19 TW x	4.17	mm	0.164	in.
1st layer composition and Øeq	7 x	5.21	mm	0.205	in.
2nd layer composition and Øeq	12 x	5.16	mm	0.203	in.
Lay Direction of outer layer		Right Hand (Z)			

CONDUCTOR PROPERTIES

Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	400.2	mm ²	789.8	kcmil
Cross Sectional Area - Composite Core	47.2	mm ²	0.0731	in. ²
Total Area of Conductor Cross Section	447.4	mm ²	0.6934	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	413.3	mm ²	815.7	kcmil
Overall Diameter of Conductor	24.43	mm	0.962	in.
Mass per unit length - Annealed Aluminum	1,106.7	kg/km	743.7	lb/kft
Mass per unit length - Core	87.3	kg/km	58.6	lb/kft
Mass per unit length - Conductor	1,194.0	kg/km	802.3	lb/kft
Ultimate Tensile Strength of Conductor	129.9	kN	29.2	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	18.47	10 ⁻⁶ K ⁻¹	10.26	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	62	GPa	9.02	Msi

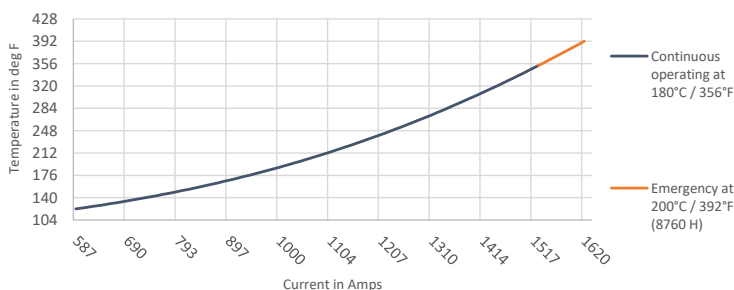
THERMAL SPECIFICATIONS

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	1,056.9	W-s/m-°C	178.9	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)	0.0700	ohm/km	0.1127	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)	0.0731	ohm/km	0.1176	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.0870	ohm/km	0.1401	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.1166	ohm/km	0.1877	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.1223	ohm/km	0.1967	ohm/mile

AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	1,535 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	1,620 A			



Geometric Mean Radius (GMR)

9.89 mm 0.0324 ft.

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

0.215 Ω.km-1 0.3460 ohm/mile

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

0.184 MΩ.km 0.1143 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.

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