TECHNICAL DATA SHEET

ECRC® 160 - 47

Epsilon Advanced Conductors

EPSILON CABLE

International size	**JAIPUR**
ASTM Size	-
Technical designation	ECRC® 160-AL0/47-S1



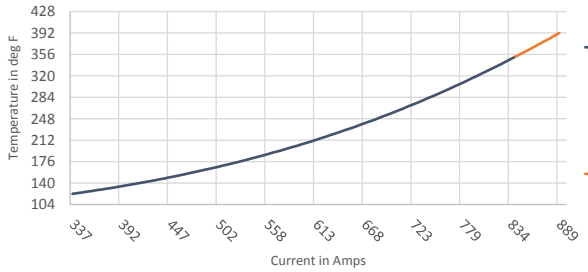
Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION		Metric		US Customary	
	*No. & Diameter of composite core*		1 x 7.75 mm	1 x 0.305	in.
	Aluminum layers construction / Height	24 TW x	2.19 mm	0.086	in.
	1st layer composition and Øeq	10 x	2.84 mm	0.112	in.
	2nd layer composition and Øeq	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	mm²	303.6	kcmil
Cross Sectional Area - Composite Core	47.2	mm²	0.0731	in.²
Total Area of Conductor Cross Section	201.0	mm²	0.3116	in.²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	158.9	mm²	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	4.03	10^{-3} K^{-1}	2.089	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)	0.2231	ohm/km	0.3591	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.3001	ohm/km	0.4829	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.3147	ohm/km	0.5065	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) [1]	844 A			
AC Current Rating at 200°C / 392°F (surface temperature) [1]	889 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 02

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