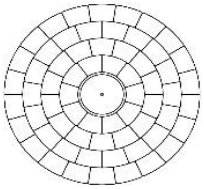
TECHNICAL DATA SHEET	ECRC® 1160 - 79 Epsilon Advanced Conductors	EPSILON CABLE

International size	-
ASTM Size	**CHUKAR**
Technical designation	ECRC® 1160-AL0/79-S1



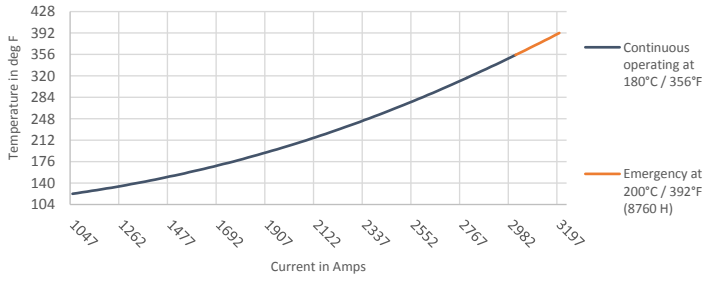
Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION		Metric		US Customary	
	*No. & Diameter of composite core*		1 x 10.03	mm	1 x 0.395	in.
	Aluminum layers construction / Height	64 TW x	3.84	mm	0.151	in.
	1st layer composition and Øeq	10 x	4.50	mm	0.177	in.
	2nd layer composition and Øeq	14 x	4.74	mm	0.187	in.
	3st layer composition and Øeq	18 x	4.86	mm	0.191	in.
	4st layer composition and Øeq	22 x	4.91	mm	0.193	in.
	Lay Direction of outer layer		Right Hand (Z)			

CONDUCTOR PROPERTIES				
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	1,156.4	mm²	2282.2	kcmil
Cross Sectional Area - Composite Core	79.0	mm²	0.1225	in.²
Total Area of Conductor Cross Section	1,235.4	mm²	1.9149	in.²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	1,194.3	mm²	2357.1	kcmil
Overall Diameter of Conductor	40.74	mm	1.604	in.
Mass per unit length - Annealed Aluminum	3,206.8	kg/km	2,154.9	lb/kft
Mass per unit length - Core	146.2	kg/km	98.2	lb/kft
Mass per unit length - Conductor	3,353.0	kg/km	2,253.1	lb/kft
Ultimate Tensile Strength of Conductor	246.7	kN	55.5	kips
Core Rated Tensile Strength	177.3	kN	39.9	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	20.12	10^{-6} K^{-1}	11.18	10^{-6} F^{-1}
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	59	GPa	8.61	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	3,062.5	W-s/m-°C	518.3	W-s/ft-°F
Thermal Heat Capacity for Composite Core	116.9	W-s/m-°C	19.8	W-s/ft-°F

ELECTRICAL SPECIFICATIONS				
Maximum DC Electrical Resistance at 20°C / 68°F *(1370-O at 63%IACS)*	0.0243	ohm/km	0.0391	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)	0.0289	ohm/km	0.0466	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.0333	ohm/km	0.0536	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.0428	ohm/km	0.0688	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.0446	ohm/km	0.0718	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) [1]	3,009 A			
AC Current Rating at 200°C / 392°F (surface temperature) [1]	3,197 A			



Geometric Mean Radius (GMR)			
16.25	mm	0.0533	ft.
Inductive Reactance Ø0.3m (Ø0.98ft) radius			
0.221	Ω.km-1	0.3557	ohm/mile
Capacitive Reactance Ø0.3m (Ø0.98ft) radius			
0.129	MΩ.km	0.0802	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

Ref. Document ST22-00055

Date 12-Sep-2023

This document is the property of EPSILON COMPOSITE

contact@epsilon-cable.com

www.epsilon-cable.com