

## TECHNICAL DATA SHEET

## Epsilon Advanced Conductor 1160 - 79

High Temperature Low Sag Conductors

EPSILON  
CABLE

International size

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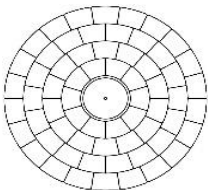
ASTM Size

CHUKAR



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.
	3rd layer composition and Øeq		18 x	4.86	mm	0.191	in.
	4th layer composition and Øeq		22 x	4.91	mm	0.193	in.
	Lay Direction of outer layer		Right Hand (Z)				

## CONDUCTOR PROPERTIES

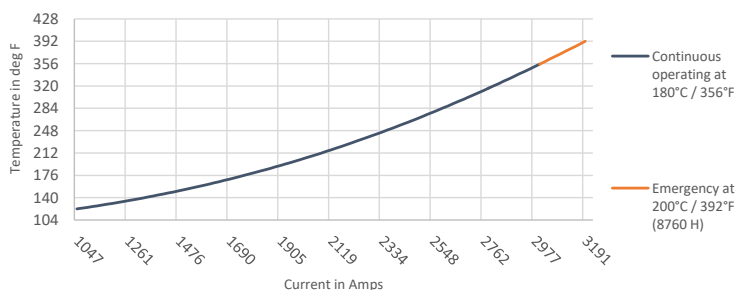
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	1,156.4	mm <sup>2</sup>	2282.2	kcmil
Cross Sectional Area - Composite Core	79.0	mm <sup>2</sup>	0.1225	in. <sup>2</sup>
Total Area of Conductor Cross Section	1,235.4	mm <sup>2</sup>	1.9149	in. <sup>2</sup>
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	1,194.3	mm <sup>2</sup>	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 <sup>-6</sup> K <sup>-1</sup>	0.722	10 <sup>-6</sup> F <sup>-1</sup>
Coefficient of Linear Expansion Below Thermal Kneepoint	20.12	10 <sup>-6</sup> K <sup>-1</sup>	11.18	10 <sup>-6</sup> F <sup>-1</sup>
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 <sup>(2)</sup> (surface temperature)	180	°C	356	°F
Maximum Emergency Temperature / 8760 Hours <sup>(2)</sup> (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	4.07	10 <sup>-3</sup> K <sup>-1</sup>	2.109	10 <sup>-3</sup> F <sup>-1</sup>
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	0.0537	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.0429	ohm/km	0.0691	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.0448	ohm/km	0.0721	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) <sup>(1)</sup>	3,004 A			
AC Current Rating at 200°C / 392°F (surface temperature) <sup>(1)</sup>	3,191 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/m<sup>2</sup> (92.9 W/ft<sup>2</sup>) 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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