

## TECHNICAL DATA SHEET


## Epsilon Advanced Conductor 820 - 60

High Temperature Low Sag Conductors

EPSILON  
CABLEInternational size **PARIS**ASTM Size **BITTERN**

Governing Units: Metric to US Customary (Unit conversion)

## STRANDING CONFIGURATION

	No. & Diameter of composite core	Metric			US Customary	
	Aluminum layers construction / Height	38 TW x	4.24	mm	0.167	in.
	1st layer composition and $\phi_{eq}$	8 x	5.14	mm	0.202	in.
	2nd layer composition and $\phi_{eq}$	13 x	5.16	mm	0.203	in.
	3st layer composition and $\phi_{eq}$	17 x	5.31	mm	0.209	in.
	Lay Direction of outer layer	Right Hand (Z)				

## CONDUCTOR PROPERTIES

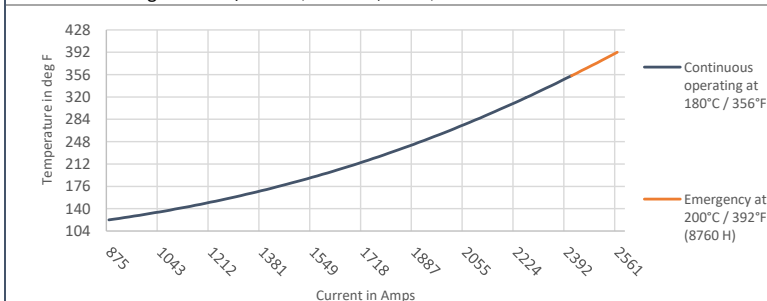
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	814.6	mm <sup>2</sup>	1607.6	kcmil
Cross Sectional Area - Composite Core	60.3	mm <sup>2</sup>	0.0934	in. <sup>2</sup>
Total Area of Conductor Cross Section	874.8	mm <sup>2</sup>	1.3560	in. <sup>2</sup>
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	841.3	mm <sup>2</sup>	1660.3	kcmil
Overall Diameter of Conductor	34.2	mm	1.346	in.
Mass per unit length - Annealed Aluminum	2,255.0	kg/km	1,515.3	lb/kft
Mass per unit length - Core	111.5	kg/km	74.9	lb/kft
Mass per unit length - Conductor	2,366.5	kg/km	1,590.2	lb/kft
Ultimate Tensile Strength of Conductor	184.1	kN	41.4	kips
Core Rated Tensile Strength	135.2	kN	30.4	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	19.92	10 <sup>-6</sup> K <sup>-1</sup>	11.06	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	60	GPa	8.66	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	2,153.5	W-s/m-°C	364.5	W-s/ft-°F
Thermal Heat Capacity for Composite Core	89.2	W-s/m-°C	15.1	W-s/ft-°F

## ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.0344	ohm/km	0.0554	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)	0.0382	ohm/km	0.0615	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.0448	ohm/km	0.0721	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.0588	ohm/km	0.0947	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.0615	ohm/km	0.0990	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) <sup>(1)</sup>	2,417 A			
AC Current Rating at 200°C / 392°F (surface temperature) <sup>(1)</sup>	2,561 A			



## Geometric Mean Radius (GMR)

13.66 mm 0.0448 ft.

Inductive Reactance  $\phi 0.3m$  ( $\phi 0.98ft$ ) radius0.195  $\Omega.km^{-1}$  0.3138 ohm/mileCapacitive Reactance  $\phi 0.3m$  ( $\phi 0.98ft$ ) radius0.165 M $\Omega.km$  0.1025 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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