

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 320 - 60

High Temperature Low Sag Conductors

EPSILON
CABLE



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

		Metric			US Customary	
	No. & Diameter of composite core	1 x 8.76	mm		1 x 0.345	in.
	Aluminum layers construction / Height	20 TW x	3.41	mm	0.134	in.
	1st layer composition and Øeq	8 x	4.44	mm	0.175	in.
	2nd layer composition and Øeq	12 x	4.50	mm	0.177	in.
	Lay Direction of outer layer	Right Hand (Z)				

CONDUCTOR PROPERTIES

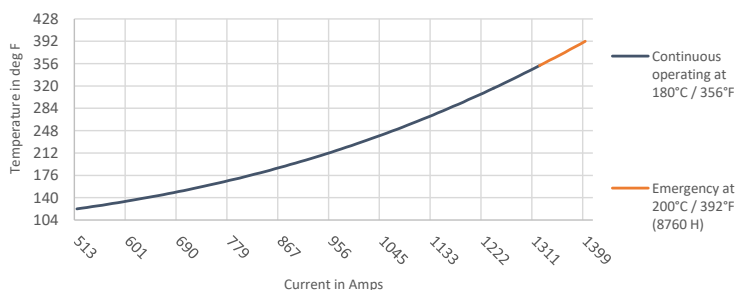
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	315.2	mm ²	622.0	kcmil
Cross Sectional Area - Composite Core	60.3	mm ²	0.0934	in. ²
Total Area of Conductor Cross Section	375.4	mm ²	0.5819	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	325.5	mm ²	642.4	kcmil
Overall Diameter of Conductor	22.4	mm	0.882	in.
Mass per unit length - Annealed Aluminum	872.0	kg/km	586.0	lb/kft
Mass per unit length - Core	111.5	kg/km	74.9	lb/kft
Mass per unit length - Conductor	983.5	kg/km	660.9	lb/kft
Ultimate Tensile Strength of Conductor	154.1	kN	34.7	kips
Core Rated Tensile Strength	135.2	kN	30.4	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	16.50	10 ⁻⁶ K ⁻¹	9.16	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	66	GPa	9.56	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	832.8	W-s/m-°C	140.9	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)	0.0889	ohm/km	0.1431	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)	0.0920	ohm/km	0.1481	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.1099	ohm/km	0.1768	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.1476	ohm/km	0.2375	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.1548	ohm/km	0.2491	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	1,326 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	1,399 A			



Geometric Mean Radius (GMR)

9.25 mm 0.0303 ft.

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

0.22 Ω.km-1 0.3541 ohm/mile

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

0.189 MΩ.km 0.1174 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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