

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 160 - 28

High Temperature Low Sag Conductors


EPSILON
CABLE

International size **HELSINKI**
ASTM Size **PASADENA**



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

		Metric			US Customary	
	No. & Diameter of composite core	1 x 5.97	mm		1 x 0.235	in.
	Aluminum layers construction / Height	18 TW x	2.42	mm	0.095	in.
	1st layer composition and Øeq	7 x	3.29	mm	0.130	in.
	2nd layer composition and Øeq	11 x	3.28	mm	0.129	in.
	Lay Direction of outer layer	Right Hand (Z)				

CONDUCTOR PROPERTIES

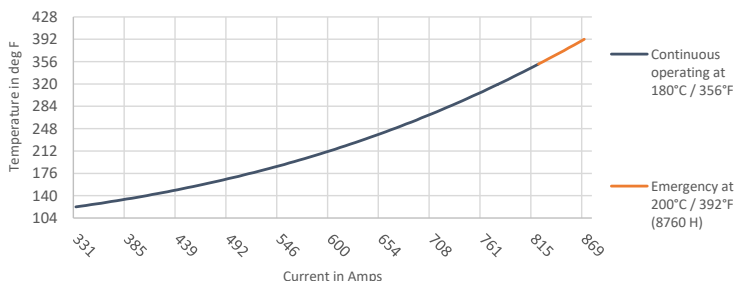
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	152.5	mm ²	301.0	kcmil
Cross Sectional Area - Composite Core	28.0	mm ²	0.0434	in. ²
Total Area of Conductor Cross Section	180.5	mm ²	0.2798	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	157.5	mm ²	310.9	kcmil
Overall Diameter of Conductor	15.65	mm	0.616	in.
Mass per unit length - Annealed Aluminum	422.0	kg/km	283.6	lb/kft
Mass per unit length - Core	51.8	kg/km	34.8	lb/kft
Mass per unit length - Conductor	473.8	kg/km	318.4	lb/kft
Ultimate Tensile Strength of Conductor	69.0	kN	15.5	kips
Core Rated Tensile Strength	59.8	kN	13.4	kips
Coefficient of Linear Expansion Above Thermal Kneepoint	1.6	10 ⁻⁶ K ⁻¹	0.889	10 ⁻⁶ F ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	17.18	10 ⁻⁶ K ⁻¹	9.54	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	112	GPa	16.24	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	64	GPa	9.26	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	403.0	W-s/m-°C	68.2	W-s/ft-°F
Thermal Heat Capacity for Composite Core	41.4	W-s/m-°C	7.0	W-s/ft-°F

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.1836	ohm/km	0.2955	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)	0.1880	ohm/km	0.3025	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.2252	ohm/km	0.3625	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.3036	ohm/km	0.4885	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.3185	ohm/km	0.5125	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	825 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	869 A			



Geometric Mean Radius (GMR)

6.44 mm 0.0211 ft.

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

0.242 Ω.km-1 0.3895 ohm/mile

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

0.21 MΩ.km 0.1305 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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