

TECHNICAL DATA SHEET


Epsilon Advanced Conductor 230 - 40

High Temperature Low Sag Conductors

EPSILON
CABLEInternational size **REYKJAVIK**ASTM Size **ORIOLE**

Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

		Metric				US Customary	
	No. & Diameter of composite core	1 x	7.11	mm	1 x	0.280 in.	
	Aluminum layers construction / Height	20 TW x	2.93	mm	0.115	in.	
	1st layer composition and ϕ_{eq}	8 x	3.72	mm	0.146	in.	
	2nd layer composition and ϕ_{eq}	12 x	3.80	mm	0.150	in.	
	Lay Direction of outer layer	Right Hand (Z)					

CONDUCTOR PROPERTIES

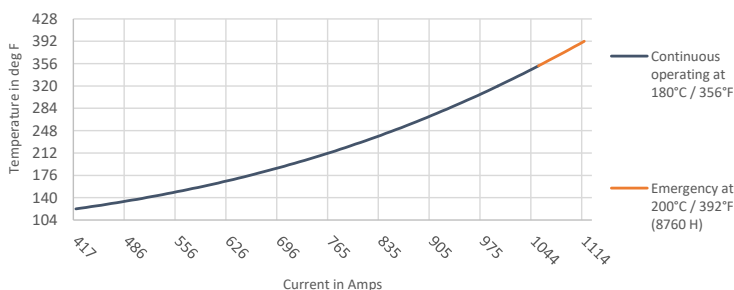
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	223.1	mm ²	440.3	kcmil
Cross Sectional Area - Composite Core	39.7	mm ²	0.0615	in. ²
Total Area of Conductor Cross Section	262.8	mm ²	0.4074	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	230.4	mm ²	454.8	kcmil
Overall Diameter of Conductor	18.82	mm	0.741	in.
Mass per unit length - Annealed Aluminum	617.3	kg/km	414.8	lb/kft
Mass per unit length - Core	73.5	kg/km	49.4	lb/kft
Mass per unit length - Conductor	690.8	kg/km	464.2	lb/kft
Ultimate Tensile Strength of Conductor	102.5	kN	23.0	kips
Core Rated Tensile Strength	89.1	kN	20.0	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	16.82	10 ⁻⁶ K ⁻¹	9.34	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	65	GPa	9.47	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	589.5	W-s/m-°C	99.8	W-s/ft-°F
Thermal Heat Capacity for Composite Core	58.8	W-s/m-°C	9.9	W-s/ft-°F

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.1255	ohm/km	0.2020	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)	0.1290	ohm/km	0.2076	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.1544	ohm/km	0.2484	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.2078	ohm/km	0.3344	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.2180	ohm/km	0.3508	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	1,057 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	1,114 A			



Geometric Mean Radius (GMR)

7.74 mm 0.0254 ft.

Inductive Reactance $\phi 0.3m$ ($\phi 0.98ft$) radius0.231 $\Omega \cdot km^{-1}$ 0.3718 ohm/mileCapacitive Reactance $\phi 0.3m$ ($\phi 0.98ft$) radius0.199 M $\Omega \cdot km$ 0.1237 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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