

TECHNICAL DATA SHEET

Epsilon Advanced Conductor 430 - 52

High Temperature Low Sag Conductors

EPSILON
CABLE

International size **BRUSSELS**
ASTM Size **GROSBEAK**



Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION

		Metric			US Customary	
	No. & Diameter of composite core	1 x 8.13	mm		1 x 0.320	in.
	Aluminum layers construction / Height	20 TW x	4.25	mm	0.167	in.
	1st layer composition and Øeq	8 x	5.01	mm	0.197	in.
	2nd layer composition and Øeq	12 x	5.29	mm	0.208	in.
	Lay Direction of outer layer	Right Hand (Z)				

CONDUCTOR PROPERTIES

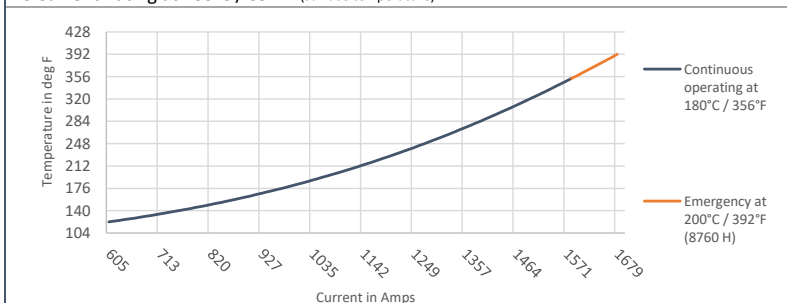
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	421.7	mm ²	832.1	kcmil
Cross Sectional Area - Composite Core	51.9	mm ²	0.0805	in. ²
Total Area of Conductor Cross Section	473.6	mm ²	0.7340	in. ²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	435.5	mm ²	859.4	kcmil
Overall Diameter of Conductor	25.13	mm	0.989	in.
Mass per unit length - Annealed Aluminum	1,166.0	kg/km	783.5	lb/kft
Mass per unit length - Core	96.0	kg/km	64.5	lb/kft
Mass per unit length - Conductor	1,262.0	kg/km	848.1	lb/kft
Ultimate Tensile Strength of Conductor	141.8	kN	31.9	kips
Core Rated Tensile Strength	116.5	kN	26.2	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	18.32	10 ⁻⁶ K ⁻¹	10.17	10 ⁻⁶ F ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	62	GPa	9.06	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	1,113.5	W-s/m-°C	188.5	W-s/ft-°F
Thermal Heat Capacity for Composite Core	76.8	W-s/m-°C	13.0	W-s/ft-°F

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C / 68°F (1370-O at 63%IACS)	0.0664	ohm/km	0.1069	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)	0.0695	ohm/km	0.1118	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.0827	ohm/km	0.1331	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.1107	ohm/km	0.1782	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.1161	ohm/km	0.1868	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) ⁽¹⁾	1,590 A			
AC Current Rating at 200°C / 392°F (surface temperature) ⁽¹⁾	1,679 A			



(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.

Geometric Mean Radius (GMR)

10.20 mm 0.0335 ft.

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

0.213 Ω.km-1 0.3428 ohm/mile

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

0.183 MΩ.km 0.1137 Mohm-mile

Revision 01

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