TECHNICAL DATA SHEET	ECRC® 180 - 40 Epsilon Advanced Conductors	EPSILON CABLE

International size	**ZADAR**
ASTM Size	-
Technical designation	ECRC® 180-AL0/40-S1



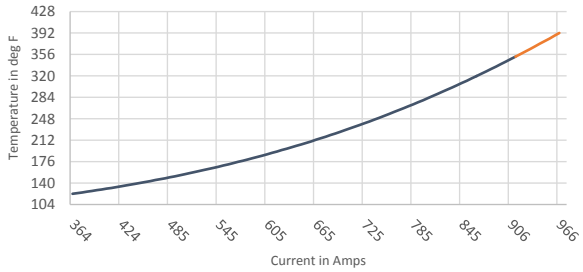
Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION		Metric		US Customary	
	*No. & Diameter of composite core*		1 x 7.11 mm	1 x 0.280	in.
	Aluminum layers construction / Height	17 TW x	2.50 mm	0.098	in.
	1st layer composition and Øeq	7 x	3.59 mm	0.141	in.
	2nd layer composition and Øeq	10 x	3.69 mm	0.145	in.
	Lay Direction of outer layer	Right Hand (Z)			

CONDUCTOR PROPERTIES				
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	177.6	mm²	350.4	kcmil
Cross Sectional Area - Composite Core	39.7	mm²	0.0615	in.²
Total Area of Conductor Cross Section	217.3	mm²	0.3368	in.²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	183.4	mm²	361.9	kcmil
Overall Diameter of Conductor	17.09	mm	0.673	in.
Mass per unit length - Annealed Aluminum	491.4	kg/km	330.2	lb/kft
Mass per unit length - Core	73.5	kg/km	49.4	lb/kft
Mass per unit length - Conductor	564.9	kg/km	379.6	lb/kft
Ultimate Tensile Strength of Conductor	99.7	kN	22.4	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	15.77	10^{-6} K^{-1}	8.76	10^{-6} F^{-1}
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	67	GPa	9.78	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	469.3	W-s/m-°C	79.4	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)*	0.1578	ohm/km	0.2540	ohm/mile
Temperature Coefficient of Resistance	4.03	10^{-3} K^{-1}	2.089	10^{-3} F^{-1}
AC Nominal Resistance at 25°C / 77°F (surface temperature)	0.1617	ohm/km	0.2603	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.1934	ohm/km	0.3112	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.2600	ohm/km	0.4184	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.2727	ohm/km	0.4389	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) [1]	917 A			
AC Current Rating at 200°C / 392°F (surface temperature) [1]	966 A			



Geometric Mean Radius (GMR)				
	7.10	mm	0.0233	ft.
Inductive Reactance Ø0.3m (Ø0.98ft) radius				
	0.236	Ω.km-1	0.3798	ohm/mile
Capacitive Reactance Ø0.3m (Ø0.98ft) radius				
	0.205	MΩ.km	0.1274	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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