TECHNICAL DATA SHEET

ECRC® 1020 - 75

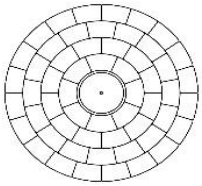
Epsilon Advanced Conductors

EPSILON CABLE

International size	**MADRID**
ASTM Size	**LAPWING**
Technical designation	ECRC® 1020-AL0/75-S1



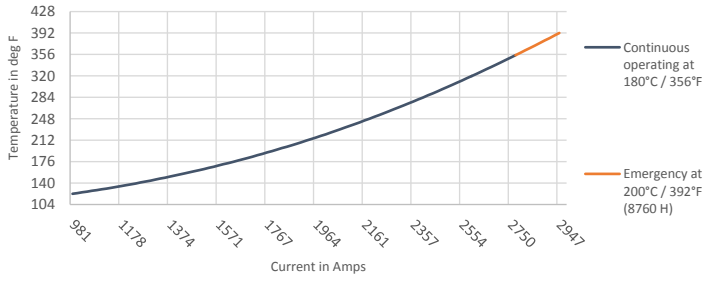
Governing Units: Metric to US Customary (Unit conversion)

STRANDING CONFIGURATION		Metric		US Customary	
	*No. & Diameter of composite core*	1 x 9.78	mm	1 x 0.385	in.
	Aluminum layers construction / Height	56 TW x 3.55	mm	0.140	in.
	1st layer composition and Øeq	8 x 4.76	mm	0.187	in.
	2nd layer composition and Øeq	12 x 4.80	mm	0.189	in.
	3st layer composition and Øeq	16 x 4.81	mm	0.189	in.
	4st layer composition and Øeq	20 x 4.81	mm	0.189	in.
	Lay Direction of outer layer	Right Hand (Z)			

CONDUCTOR PROPERTIES				
Cross Sectional Area - Annealed Aluminum (1350-O at 63%IACS)	1,012.7	mm²	1998.5	kcmil
Cross Sectional Area - Composite Core	75.1	mm²	0.1164	in.²
Total Area of Conductor Cross Section	1,087.8	mm²	1.6861	in.²
Nominal equivalent Aluminum Area (1350-H19 at 61%IACS)	1,045.9	mm²	2064.1	kcmil
Overall Diameter of Conductor	38.18	mm	1.503	in.
Mass per unit length - Annealed Aluminum	2,805.0	kg/km	1,884.9	lb/kft
Mass per unit length - Core	139.0	kg/km	93.4	lb/kft
Mass per unit length - Conductor	2,944.0	kg/km	1,978.3	lb/kft
Ultimate Tensile Strength of Conductor	229.3	kN	51.6	kips
Core Rated Tensile Strength	168.6	kN	37.9	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	19.91	10^{-6} K^{-1}	11.06	10^{-6} F^{-1}
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa	17.84	Msi
Final Modulus of Elasticity Below Thermal Kneepoint	60	GPa	8.66	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	2,678.8	W-s/m-°C	453.4	W-s/ft-°F
Thermal Heat Capacity for Composite Core	111.2	W-s/m-°C	18.8	W-s/ft-°F

ELECTRICAL SPECIFICATIONS				
Maximum DC Electrical Resistance at 20°C / 68°F *(1370-O at 63%IACS)*	0.0277	ohm/km	0.0446	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)	0.0320	ohm/km	0.0515	ohm/mile
AC Nominal Resistance at 75°C / 167°F (surface temperature)	0.0371	ohm/km	0.0597	ohm/mile
AC Nominal Resistance at 180°C / 356°F (surface temperature)	0.0480	ohm/km	0.0773	ohm/mile
AC Nominal Resistance at 200°C / 392°F (surface temperature)	0.0502	ohm/km	0.0807	ohm/mile
AC Current Rating at 180°C / 356°F (surface temperature) [1]	2,776 A			
AC Current Rating at 200°C / 392°F (surface temperature) [1]	2,947 A			



Geometric Mean Radius (GMR)			
15.27	mm	0.0501	ft.
Inductive Reactance Ø0.3m (Ø0.98ft) radius			
0.188	Ω.km-1	0.3026	ohm/mile
Capacitive Reactance Ø0.3m (Ø0.98ft) radius			
0.159	MΩ.km	0.0988	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.

Revision 02

Ref. Document ST21-00095

Date 12-Sep-2023

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