

TECHNICAL DATA SHEET

HVCRC® 820 - 60 Epsilon Advanced Conductors

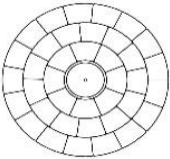
EPSILON
CABLE

International size	PARIS
ASTM Size	BITTERN
Technical designation	ECRC® 820-AL0/60-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 8.76	mm
	Aluminium Layers Construction / height	38 TW x	4.24 mm
	1st layer composition and Øeq	8 x	5.14 mm
	2nd layer composition and Øeq	13 x	5.16 mm
	3st layer composition and Øeq	17 x	5.31 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

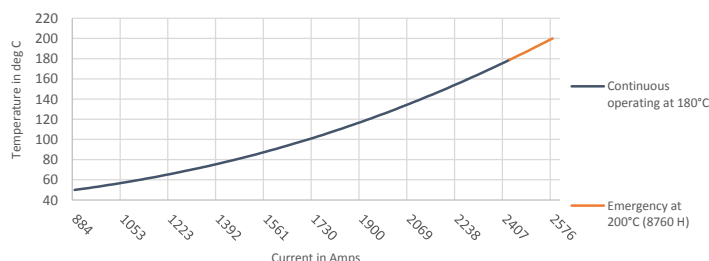
Cross Sectional Area - Annealed Aluminium	814.6	mm²
Cross Sectional Area - HVCRC Core	60.3	mm²
Total Area of Conductor Cross Section	874.8	mm²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	841.3	mm²
Overall Diameter of Conductor	34.2	mm
Mass per unit length - Annealed Aluminium	2,255.0	kg/km
Mass per unit length - Core	111.5	kg/km
Mass per unit length - Conductor	2,366.5	kg/km
Ultimate Tensile Strength of Conductor	184.1	kN
Core Rated Tensile Strength	135.2	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.3	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	19.92	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	60	GPa

THERMAL SPECIFICATIONS

Maximum Continuous Operating Temperature ⁽²⁾ (surface temperature)	180	°C
Maximum Emergency Temperature / 8760 Hours ⁽²⁾ (surface temperature)	200	°C
Thermal Heat Capacity for Annealed Aluminium Layers	2,153.5	W.s/m.°C
Thermal Heat Capacity for Composite Core	89.2	W.s/m.°C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0344	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.0373	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.0439	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.0553	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.0580	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.0607	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	2,279	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	2,432	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	2,576	A



(1) Ampacity calculations based on IEEE Standard 738-2012, according to the following data:

25 °C ambient temperature,	0.61 m/s wind velocity with an angle of 90 °,
1000 W/m² solar radiation,	0.5 solar absorption coefficient,
0.6 emissivity coefficient,	Resistance AC at 50 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.

Depending on conductor manufacturer rated specifications may slightly change.

Geometric Mean Radius (GMR)	13.66	mm
Inductive Reactance Ø0.3m radius	0.195	Ω.km ⁻¹
Capacitive Reactance Ø0.3m radius	0.165	MΩ.km

Revision 02
Ref. Document ST21-00052
Date 12-Sep-2023

This document is the property of EPSILON COMPOSITE
contact@epsilon-cable.com
www.epsilon-cable.com