

**TECHNICAL DATA SHEET**
**HVCRC® 600 - 71**  
 Epsilon Advanced Conductors

**EPSILON**  
**CABLE**

International size	<b>ROME</b>
ASTM Size	<b>ARLINGTON</b>
Technical designation	<b>ECRC® 600-AL0/71-S1</b>



Governing Units: Metric

**STRANDING CONFIGURATION**

	No. & Diameter of HVCRC core	1 x 9.53	mm
	Aluminium Layers Construction / height	36 TW x	3.39 mm
	1st layer composition and $\phi_{eq}$	8 x	4.57 mm
	2nd layer composition and $\phi_{eq}$	12 x	4.60 mm
	3st layer composition and $\phi_{eq}$	16 x	4.59 mm
	Lay Direction of outer layer	Right Hand (Z)	

**CONDUCTOR PROPERTIES**

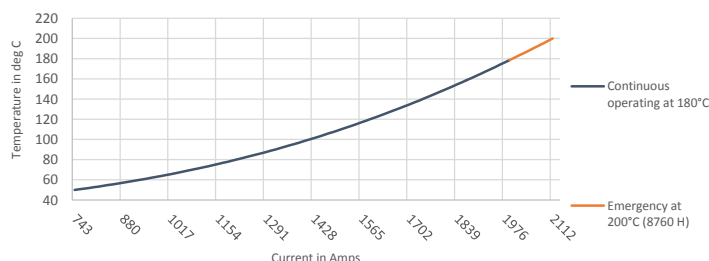
Cross Sectional Area - Annealed Aluminium	595.3	mm <sup>2</sup>
Cross Sectional Area - HVCRC Core	71.3	mm <sup>2</sup>
Total Area of Conductor Cross Section	666.6	mm <sup>2</sup>
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	614.8	mm <sup>2</sup>
Overall Diameter of Conductor	29.87	mm
Mass per unit length - Annealed Aluminium	1,647.0	kg/km
Mass per unit length - Core	132.0	kg/km
Mass per unit length - Conductor	1,779.0	kg/km
Ultimate Tensile Strength of Conductor	195.8	kN
Core Rated Tensile Strength	160.1	kN
Coefficient of Linear Expansion <b>Above</b> Thermal Kneepoint	1.3	10 <sup>-6</sup> K <sup>-1</sup>
Coefficient of Linear Expansion <b>Below</b> Thermal Kneepoint	18.41	10 <sup>-6</sup> K <sup>-1</sup>
Final Modulus of Elasticity <b>Above</b> Thermal Kneepoint	123	GPa
Final Modulus of Elasticity <b>Below</b> Thermal Kneepoint	62	GPa

**THERMAL SPECIFICATIONS**

Maximum Continuous Operating Temperature <sup>(2)</sup> (surface temperature)	180	°C
Maximum Emergency Temperature / 8760 Hours <sup>(2)</sup> (surface temperature)	200	°C
Thermal Heat Capacity for Annealed Aluminium Layers	1,572.9	W.s/m. °C
Thermal Heat Capacity for Composite Core	105.6	W.s/m. °C

**ELECTRICAL SPECIFICATIONS**

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0471	Ω.km <sup>-1</sup>
Temperature Coefficient of Resistance	4.03	10 <sup>-3</sup> K <sup>-1</sup>
AC Nominal Resistance at 25°C (surface temperature)	0.0497	Ω.km <sup>-1</sup>
AC Nominal Resistance at 75°C (surface temperature)	0.0589	Ω.km <sup>-1</sup>
AC Nominal Resistance at 160°C (surface temperature)	0.0748	Ω.km <sup>-1</sup>
AC Nominal Resistance at 180°C (surface temperature)	0.0785	Ω.km <sup>-1</sup>
AC Nominal Resistance at 200°C (surface temperature)	0.0823	Ω.km <sup>-1</sup>
AC Current Rating at 160°C (surface temperature) <sup>(1)</sup>	1,874	A
AC Current Rating at 180°C (surface temperature) <sup>(1)</sup>	1,998	A
AC Current Rating at 200°C (surface temperature) <sup>(1)</sup>	2,112	A


**Geometric Mean Radius (GMR)**

12.11 mm

**Inductive Reactance Ø0.3m radius**

 0.203 Ω.km<sup>-1</sup>
**Capacitive Reactance Ø0.3m radius**

0.173 MΩ.km

(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/m <sup>2</sup> 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.

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